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NATIONAL BRUCELLOSIS COMMITTEE MEETING



1962
PROCEEDINGS

National Brucellosis Committee
S. H. McNutt, Chairman
University of Wisconsin
Department of Veterinary Science
Madison, Wisconsin

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Membership of the National Brucellosis Committee

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FEDERAL EXTENSION SERVICE, USDA

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Mike Bay

U. S. LIVESTOCK SANITARY ASSOCIATION

Dr. R. W. Smith

U. S. PUBLIC HEALTH SERVICE

Dr. James H. Steele

Dr. W. Max Decker

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| C. K. Mingle | Keith Myers | Paul Zillman |

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| R. W. Smith | Archie Wilson | Archie Wilson |

ATTENDANCE AT THE 1962 ANNUAL MEETING
of the
NATIONAL BRUCELLOSIS COMMITTEE
Chicago, Illinois
February 21 and 22

| | |
|--|--------------------------------------|
| Bob Laramore Gillette, Wyoming | American National Cattlemen's Ass'n |
| Dudley T. Campbell 801 E 17th Avenue Denver 18, Colorado | American National Cattlemen's Ass'n |
| Si Bertelson Rio Blanco, Colorado | Colorado Cattlemen's Association |
| Louis Thompson Waterloo, Iowa | The Rath Packing Company |
| Robert G. Parsons Weston, Colorado | Colorado Cattlemen's Association |
| Fred A. Hobert Pampa, Texas | Cattle Raiser |
| Norman B. McCullough Bethesda, Maryland | National Institute of Health |
| Irving H. Borts Iowa City, Iowa | State Hygiene Laboratory |
| Henry C. Miller Route 2 Missoula, Montana | Montana Livestock Sanitary Board |
| Robert K. Anderson, D.V.M. St. Paul, Minnesota | University of Minnesota |
| R. E. Cunningham Omaha, Nebraska | Live Stock Exchange |
| Stanley L. Hendricks Des Moines, Iowa | Iowa State Department of Health |
| Merton Glover Porcupine, South Dakota | South Dakota Stockgrowers Ass'n |
| H. S. Nicol Des Moines, Iowa | Iowa Farm Bureau |
| E. F. Chastain 1220 N. Street Sacramento 25, California | California Department of Agriculture |

Herman C. Aaberg
2300 Merchandise Mart
Chicago 54, Illinois

American Farm Bureau Federation

Archie Wilson
St. Xavier, Montana

Montana Livestock Board

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University of Wisconsin
Madison, Wisconsin

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Federal Extension Service
Washington 25, D. C.

U. S. Department of Agriculture

E. A. Schilf
A. D. E. Division, ARS
Washington 25, D. C.

U. S. Department of Agriculture

Mike Bay
Information Division, ARS
Washington 25, D. C.

U. S. Department of Agriculture

Robert C. Hill
Bruceville, Indiana

Hereford Breeders

Bruce Orcutt
Miles City, Montana

Stockman's Disease Control Association

C. A. Manthei
Animal Disease Laboratory, ARS
Beltsville, Maryland

U. S. Department of Agriculture

R. W. Smith
Division of Animal Industry
State Dept. of Agriculture
Concord, New Hampshire

U. S. Livestock Sanitary Association

MARKET CATTLE TESTING IN MONTANA

Progress Report
by
Archie Wilson

Testing of market cattle has the potential of being one of the more desirable methods that can be used to provide a constant yearly screening of all herds throughout the entire United States. Not only for brucellosis, but many other diseases.

The drawing of blood samples from properly identified cattle either at the market or slaughter house is proving to be a very successful way to establish herd status. It will mean that an infection could be detected and control measures applied before too much harm is done. It has a very distinct advantage to livestock industry by eliminating the necessity of handling and penning for testing herds that are free of disease. Economical in making possible the concentration of personnel and disease eradication funds on infected herds.

It is being recognized by the trading and marketing industry that cattle identified by the "Back Tag" indicates that the herd of origin is being constantly screened to maintain a disease free status and a cow wearing a "Back Tag" being readily identifiable is the more desirable animal.

The following information was compiled in Montana by Sanitary Board personnel with assistance of the Animal Disease Eradication Division.

| | |
|---|---------|
| Total cattle backtagged (October 1959 thru Jan. 1962) | 157,487 |
| Total backtagged at ranches | 14,794 |
| Total slaughter returns on backtagged cattle | 72,497 |
| Total slaughter returns on brand identification | 26,695 |
| Total States from which market cattle test results received | 17 |

| | |
|--|--------|
| Total reactors found on slaughter (backtagged or brand identification) - | 348 |
| Total reactors slaughtered more than 14 days after backtagged | 23 |
| Estimated herds on which screen test results are recorded | 14,254 |
| Estimated herds participating in market cattle testing program | 80% |

Estimated cost of applying backtags:

\$0.08 on M.L.S.B. per diem-backtaggers at five Montana markets for months of September, October, November, and December. All Federal "livestock inspectors" are doing backtagging at the other ten markets in conjunction with other work, and it is not possible to assess accurately the costs in this one category. In slow marketing seasons this could advance considerably so that a fair average figure of 10¢ could be used.

Cost of collecting blood samples at slaughter:

In only one plant can these costs be appraised accurately. This example is at Sigman's Plant, Butte, Montana, where a Federal "livestock inspector" is on duty 4 days per week for blood sample collection. The average is 28¢ per blood sample collected in this plant. In other plants it might range up to 35¢ per sample where the kill is slower and the proportion of cows on kill is lower.

Fifteen counties have been recertified with the help of backtagging. It now appears that several of the predominantly range counties will have accumulated the 15 percent screen results before the end of the three-year period, which began with the distribution of backtags to cattle owners in that county. Part of this success can be attributed to heavy marketing of cows in 1961 due to the drought conditions, which, in turn, accounted for increased backtagging and the testing at markets of cows destined for States requiring a brucellosis test. From July 1, 1961, with backtagging fully implemented at all markets, 76,498 backtags were applied by December 31, 1961 - 49 percent of all the backtags applied in the 28-month period since the inception of the present backtagging program on October 1, 1959.

During the last six-month period of 1961 where 76,498 backtags were applied, slaughter results were obtained on 29,115 backtagged cows and 3,521 cows identified by brand. Test results obtained on cows at markets which were brucellosis tested prior to shipment to out-of-State destinations continue to be collected from market records.

The stigma on values of backtagged cows in a market now has been erased. By backtagging all cows 3 years of age and over on sale at the livestock markets, the slaughter stigma of the backtagged "cull and dry cow" classification has been overcome. Market managers are turning to backtag records for help in straightening out mix-ups in pens. Cows without back-

tags are an oddity and arouse curiosity. Only a very few market patrons request that backtags not be applied to their cows. To our knowledge only one trader is pulling tags from his purchased cows.

In Montana there are 1,230,000 cows two years of age and over in 26,303 herds, according to Agricultural Marketing Service figures. In 1959 there were 162,000 cows of this age sold through Montana markets, as reported by the Livestock Commission; 190,000 in 1960; and 199,000 in 1961. If 80% (2-year old and pre-sale tested stockers are usually not tagged) of an average year's marketing of 160,000 cows are backtagged, and the present slaughter returns on backtagged cows can be increased from the present 46% to 55% through improved coverage of slaughter plants and better reporting of the market-tested cow's herd of origin, recertification will be of no hardship in most Montana counties. In a very few of our Montana border counties where cattle are sold at markets across the line, county recertification will not fare so well unless a market backtagging program similar to that in Montana is carried out.

ACTIVITIES OF THE AMERICAN NATIONAL CATTLEMEN'S ASSOCIATION

BY

Bob Laramore

The American National has historically endorsed procedures to control the spread of livestock diseases, not only from the standpoint of reducing economic losses to the producers and feeders, but also in providing our customers, the consuming public, with a highly sanitary and palatable product, beef.

In Omaha, Nebraska, in 1959, the American National formed a Special Brucellosis Study Committee to work with all areas of the industry, such as, State and Federal regulatory officials, public and private research organizations and others to eliminate brucellosis.

Historically, the American National has endorsed a high level of calfhod vaccination as a practical means of the control of brucellosis. The purpose of the Brucellosis Study Committee has been and is to develop practical and obtainable procedures applicable to the range and semi-range areas. We congratulate and support the stand of State and Federal regulatory officials in providing additional flexibility in the recommended uniform rules for the control and eventual eradication of brucellosis. This flexibility in the program has greatly increased the participation of the beef cattle producers in the range and semi-range areas.

In Salt Lake City, the American National passed the following resolution endorsing market testing as an alternate means of recertification. The resolution reads as follows:

"RESOLVED, That we recognize the usefulness of the voluntary market cattle testing program as an alternate means of recertifying range and semi-range areas with a minimum of inconvenience to owners."

Further, in September of last year, the Brucellosis Study Committee endorsed in principle a resolution adopted by your National Brucellosis Committee which would allow initial certification through market cattle testing. I, as Chairman of the American National Cattlemen's Association Brucellosis Study Committee and a member of the Brucellosis Committee of the U.S.L.S.A., presented this resolution to that body for consideration in Minneapolis last November. I am pleased to report that this procedure for initial certification has been accepted by the U.S.L.S.A. and has been incorporated in the recommended uniform rules and regulations pertinent to brucellosis. Although there is a real need for additional educational work on market cattle testing, I believe that this alternate voluntary procedure adds still more flexibility to the brucellosis program. Some of the areas in this procedure that concern many are the "low return" of blood tests relative to total cattle tagged by the cooperating rancher. Of course, the goal would be that all cattle tagged would be tested and the information provided to the participating rancher. Perhaps, this is too much to hope for, but, nevertheless, it does form a challenging goal to which producers and State and Federal regulatory officials should address themselves.

A considerable amount of time and money have been expended on the brucellosis program. There is no doubt in looking back the last few years that we have made considerable progress in controlling this disease. Dr. C. K. Mingle has estimated that, by 1975, the nation will have accomplished eradication. This, to some, is encouraging.

We, of course, in the range and semi-range areas, feel that our problem with brucellosis is peculiar to ranching enterprises and that calfhood vaccination would certainly accomplish control of brucellosis. It has been demonstrated on rather small numbers in field trials that a high level of calfhood vaccination will meet the requirements for recertification in a modified certified area.

The intent of the Study Committee at its inception as it is now is to work toward the implementation of the following resolution:

Whereas, official vaccination has proved to be a practical and effective means for the control of brucellosis; therefore be it

Resolved, that we urge that official vaccination of bovine beef type females properly identified shall be acceptable as an alternate method for recertification of modified accredited areas in the Federal-State cooperative brucellosis eradication program; and be it further

Resolved, that we urge that bovine beef type females which have been officially brucellosis vaccinated and are properly identified, regardless of age, may be moved or transported interstate; and be it further

Resolved, that we request the president of the ANCA to appoint a representative committee to be selected from interested States, said committee to assemble and study all facts available and to be charged with the responsibility of implementing the intent of this resolution.

In conclusion, let me remove from your minds any doubts that the American National Cattlemen's Association is not just as anxious as any other organization to not only minimize economic losses to the cattlemen through abortions and side effects of brucellosis, but also, as I mentioned earlier, to insure that our product is entirely safe to the consuming public. Our goal in this regard is simply to afford the maximum flexibility to the individual operations in the range and semi-range areas. Once again, we commend the regulatory officials in developing market cattle testing. This is another valuable tool in the brucellosis "tool box." We believe there is room in that box for additional tools to make the program still more flexible and more widely accepted by the ranchers of this country.

PROPOSALS BY THE U. S. LIVESTOCK SANITARY ASSOCIATION
ON BRUCELLOSIS ERADICATION

By R. W. Smith

When God made the oyster, he guaranteed him absolute economic and social security. He built the oyster a house, a shell to protect him from other animals and other oysters. When hungry, all the oyster has to do is to open up his shell and food rushes in.

But when God made the eagle, what did he do? He said, "The blue sky is the limit. Get out, and build your own house." And the eagle goes out and builds his house on the highest mountain crag, where danger and disaster threaten him every day. For food, he flies through a thousand miles of rain and snow and wind.

The eagle and not the oyster is the emblem of America.

The Agricultural Statistics for 1959 tell us that farm assets and claims amounted to approximately 200 billion dollars, or three-fifths of the entire assets of all the industries in the United States.

We have all read and heard the statement that "Livestock is the Cornerstone of America's Agricultural wealth and that the Veterinary profession is its greatest safeguard." This statement can have only one meaning and that is unless livestock diseases are controlled and when possible, eradicated, there can be no successful agriculture. Down through the years, regulatory officials, (both Federal and State), with the cooperation of the practicing veterinarians, the livestock owners and allied interests, have waged a constant and unrelenting fight against all contagious and infectious diseases of our domestic animals.

When God made the eagle and told him to get out and fight for his existence he must have had in mind the part that agriculture would play in the existence of mankind and the continued fight that man would have to make to establish and maintain a healthy agriculture.

The men and women of this country from the Pioneer days down through the years have met the challenge of agriculture in all of its complicated phases.

The history of animal disease control and eradication goes back to the very earliest pioneer days. In the report of the Fifteenth Annual Meeting of the United States Livestock Sanitary Association in 1911, E. S. Wood, of the Kentucky Agricultural Experimental Station stated in his address entitled: "Infectious abortion in Cows and Mares," "Tuberculosis and infectious abortion are two diseases causing a tremendous loss annually to the breeders of beef and dairy animals, not only in this country but in the foreign countries as well. In fact, I believe that abortion is becoming as much a nightmare to our dairymen as is tuberculosis. The loss in the United States yearly amounts to many millions of dollars. There is no doubt that there is such a thing as infectious abortion among our domestic animals for it has been recognized for many years not only by stockmen themselves, but by veterinarians in many parts of the world."

From 1911 and maybe earlier than this date, Contagious Infectious Abortion, later known as Bang's Disease, and now as Brucellosis, has had a prominent place on the programs of the U. S. Livestock Sanitary Association. That there was much to be learned on the subject is evident from the early reports.

Records show that definite and satisfactory progress has been made in recent years in the eradication program and all indications are that all States will qualify as a Modified-Certified Area during the next few years, providing sufficient funds are made available.

Last June at a special meeting of the National Brucellosis Committee held in this city, the following additional alternative method of certification was proposed for discussion and ultimate acceptance by appropriate disease control authorities:

The Proposed Alternate Plan

Using approved back tagging and market testing procedures, when 5% of all cattle 30 months of age and over in all herds in a control area have been screened annually for 3 years and level of infection is found to be below minimum official levels and an official vaccination program of an intensive level has been carried out concurrently, such procedures should be acceptable for official initial certification.

SWINE BRUCELLOSIS

Also at the June meeting of the National Brucellosis Committee, swine brucellosis eradication was discussed at length. The need for substituting the term "Validated" for "Certified" in identifying officially recognized brucellosis-free swine herds was unanimously accepted by those present.

Under date of August 18, 1961, the Chairman of the United States Livestock Sanitary Association received the following resolution from the National Association of Swine Records, signed R. E. Judd, President:

"WHEREAS, swine brucellosis is a serious problem to swine producers, both from the economic losses it causes and from the standpoint of the hazards to human health, and

WHEREAS, concerted action at the National, State and local levels is necessary to eradicate this disease:

NOW THEREFORE BE IT RESOLVED by the National Association of Swine Records meeting in Champaign, Illinois on July 12,

1. That an effective swine brucellosis eradication program be initiated, such a program to be based upon procedures recommended by the United States Livestock Sanitary Association, and approved by the USDA,
2. That all States adopt these same procedures for the purpose of establishing brucellosis-free swine herds;
3. That those swine herds which qualify under these procedures be designated as "Validated Brucellosis-Free Herds": and
4. That all States take action to allow individual animals from such "Validated Brucellosis-Free Herds" to move interstate without further test.

BE IT FURTHER RESOLVED,

That the U. S. Department of Agriculture, through its Animal Disease Eradication Division, provide the membership of the Associations comprising the National Association of Swine Records with information on swine brucellosis, its prevention and eradication."

Both of these recommendations were presented to and discussed at length at the open hearing on brucellosis held by the Brucellosis Committee of the United States Livestock Sanitary Association at their annual meeting held in Minneapolis last Fall.

Each year as we meet in convention, new plans backed up by research and controlled experiments are presented for consideration. Many resolutions and suggestions for improvement of the program were received during the year 1961 from different sections of our country. All of these were considered in public hearings. We believe that everyone had an opportunity to present his case and every proposal was given careful consideration

This coveted goal of attaining a Modified-Certified Brucellosis status is the desire of every State. Upon achieving it, however, a State may be in its most dangerous period. There is the real prospect of a letdown in the vigorous effort to attain final and complete eradication. While State and Federal expenditures can be reduced considerably following attainment of the Modified-Certified Brucellosis status, industry and professional pressure must be continued, not only to attain final eradication but to prevent losing hard-fought ground.

There is no short road to success in disease eradication, and that increasing warfare against all contagious and dangerous economic livestock diseases demands of us constant watchfulness and service.

The Committee on Brucellosis for the year 1961 was made up of men from all parts of our country and Canada. All are educated and well versed in the business of Animal Industry. It has been said

that an educated man is one who keeps his mind open on every question until the evidence is all in. He always listens to the man or men who know. He never laughs at new ideas. He cross-examines his day-dreams. He knows his strong points and plays them. He knows when to think and when to call in the experts to think with him. You can't sell him magic. I am sure the members of the Brucellosis Committee were qualified according to the above formula.

From early morning until late in the evening all phases of Brucellosis eradication were discussed. All interested parties were given an opportunity to be heard. All resolutions were given serious consideration and study.

The Brucellosis Committee of the United States Livestock Sanitary Association recommended the following changes and additions to the Uniform Methods and Rules governing the eradication of brucellosis in the United States:

The following Resolutions of the American National Cattlemen's Association were presented by Robert Laramore, Gillette, Wyoming:

RESOLUTION

Using approved back tagging and market testing procedures, when 5 percent of all female cattle 30 months of age and over in all herds in a control area have been screened annually for 3 years, or herds not so complying have tested in compliance with progressive chart of the Uniform Methods and Rules and an official vaccination program has been carried out concurrently, and the level of infection is found to be below minimum official levels, such procedures shall be acceptable for official initial certification.

The percentage of replacement heifer calves to be vaccinated to comply with this Section may be varied by local conditions and agreed upon by Federal and State regulatory officials and the affected cattle owners in the area.

This Resolution was adopted in principle by your Committee. Its operation will be provided for in the Uniform Methods and Rules.

RESOLUTION

"Be it resolved that: In any range or semi-range area, any modified county or area shall be eligible to recertify by calfhood vaccination when 80 percent of the breeding cattle in such county or area can show positive evidence to the fact that all of the heifers retained or added annually in the herd have been officially calfhood vaccinated. Any herd not so vaccinated shall be submitted to the required blood test each three years.

"Be it further resolved: That any herd electing to recertify under the above alternate method must have a five-year background of official calfhood vaccination or the entire herd has been officially calfhood vaccinated."

This resolution was thoroughly discussed by your Committee; however, in the light of information available, your Committee did not adopt this resolution.

In view of the excellent progress being made in the cooperative brucellosis eradication program, your Committee strongly recommends that adequate State and Federal funds be provided to assure completion of the Program as quickly as possible.

Your Committee further recommends the adoption by all States of the word "Validated" in lieu of "Certified" for designating brucellosis-free swine herds.

The following changes in the Uniform Methods and Rules were proposed:

PART IV: MODIFIED CERTIFIED AREA PLAN

Section I. Area Certification

Paragraph D

D. An Area may be declared a Modified Certified Brucellosis Area under combined market cattle testing and milk ring testing programs provided each herd within the area qualifies according to one of the following four methods listed below and provided vaccination of replacement heifer calves is practiced at a level determined by State and Federal regulatory officials in consultation with cattle owners in the area involved. Herds in which reactors are found shall be quarantined until they have passed one negative complete herd blood test at least thirty (30) days following removal of the cattle classed positive, except cattle consigned for immediate slaughter under permit. In the last test of all herds blood tested, the number of reactors shall not exceed one percent of the area cattle population and the number of infected herds shall not exceed five percent.

Methods of Herd Qualification:

1. Brucellosis milk ring tests shall be conducted on dairy herds in the area over a three-year period, with followup blood tests of suspicious herds. Each negative herd qualifying under this paragraph must be included in at least two consecutive semi-annual milk ring tests during the third year.

2. Blood tests of breeding cattle over 3 years of age, and those less than 3 years of age which are parturient or post-parturient, which are consigned to market or sale for any purpose. Each negative herd qualifying under this paragraph shall have been enrolled in this program for at least 18 months and the number of animals tested shall be at least 15 percent of the animals over 3 years of age. Tests may be accomplished at farm or ranch premises, concentration points, sales yards, packing plants or elsewhere. Herds of origin of market cattle reactors disclosed within 15 days after leaving the premises of origin shall have had a complete herd blood test prior to the date certification of the area is requested, or qualify by the following subparagraph.

3. A blood test of a representative sample group of the breeding cows over 3 years of age in each herd, the sample to contain enough animals to provide a 95 percent probability of finding brucellosis, if present, at the 2 percent level of disease incidence among the animals tested. (See Graph CA 4-4 to determine sample size for each herd.) The blood test is to be conducted within 18 months prior to the date area certification is requested.

4. A complete herd blood test conducted within 18 months prior to the date area certification is requested.

Paragraph F

F. If the test of an area as outlined under PART IV, Section I, Paragraphs A, B, or C results in more than two percent positives, or if an initial retest of infected herds as under Section I, Paragraph E, does not qualify the area for certification, it shall be necessary to make a complete area retest in accordance with Paragraphs A, B, C, or D of this Section.

PART V: CERTIFIED BRUCELLOSIS-FREE AREAS

The provisions of the individual certified herd plan that relate to quarantining, cleaning and disinfecting shall apply to Certified Brucellosis-Free Areas. The official tube agglutination test shall be utilized in all blood serum agglutination tests conducted in relation to establishing and maintaining Certified Brucellosis-Free Areas. Animals classed reactor must be immediately marketed for slaughter in accordance with Section II, Paragraph 7, of this PART. Cattle maintained in accordance with Paragraph 11, Section I, of this PART need not meet the requirements of any other Paragraph of Section I or Section II. (Steers, spayed heifers, and calves under 8 months of age are exempt from the requirements of this PART.)

Section I. Establishing Certified Brucellosis-Free Areas

Paragraph 2

2. All herds in the area except those covered in Paragraph 11 of this Section have been included in one of the following within 18 months immediately preceding the request for Certified Brucellosis-Free Area status:

Paragraphs 4, 5, 6, 7 and 8

4. Not more than one percent of the herds, or one herd, whichever is greater, shall have been found to be infected during the 18 months immediately preceding the request for Certified Brucellosis-Free Area status.
5. Not more than 0.2 percent of the cattle shall have been found to be reactors during the 18 months immediately preceding the request for Certified Brucellosis-Free Area status.
6. All suspects to the blood serum test shall:
 - (c) be a part of a herd included under 2 (a) or (b), or Paragraph 11 of this Section, or
7. All herds in which brucellosis has been known to exist have been legally released from quarantine.
8. All herds in which brucellosis has been found during the latest certification period shall have been retested not less than 3 months following removal of the last reactors, or be a herd included under 2 (a) or (b), or Paragraph 11 of this Section.

New Paragraph 11

11. Beef-type cattle may be maintained for purpose of dry lot feeding in Certified Brucellosis-Free Areas, or in areas seeking such status, provided they are inspected on the premises where held under quarantine, and are moved to slaughter under permit at the end of the feeding period.

Section II. Maintaining Certified Brucellosis-Free Areas

B. Paragraphs 1, 4, 5, and 6

1. All herds in the area are represented in one of the following:
 - (d) A complete herd blood test conducted within 18 months prior to the termination of the certification period
4. The number of herds found infected during the entire certification period does not exceed one percent of the area herd population, or one herd, whichever is greater.
5. Herds in which brucellosis has been found have been retested and legally released from quarantine, and, in addition, have been retested not less than 3 months following removal of the last reactors or be a herd included under 1 (a) or (b) of Paragraph B, this Section.
6. All suspects to the blood serum test shall:
 - (c) be a part of a herd included under 1 (a) or (b) of Paragraph B, this Section, or

Section III. Additions to Certified Brucellosis-Free Areas

Paragraph A

A. To enter a Certified Brucellosis-Free Area, cattle (except steers, spayed heifers, calves under 8 months of age, and those maintained under Paragraph 11, Section I) must be from one of the following:

SWINE BRUCELLOSIS

1. The important first step in eradication of swine brucellosis is to require by State and Federal legislation or regulations the movement of only brucellosis-free-breeding swine for breeding purposes. Without such a requirement, eradication is not a practical reality.

2. Second only to No. 1 above, is an effective system of identification of slaughter boars, stags and sows in order that they can be tested at slaughtering establishments and reactor animals traced back to herds of origin.

3. The recommendations of the U.S.L.S.A. on Swine Brucellosis at its 1958 Convention are reaffirmed. These regulations were designed for herd validation. They may be used for Area Validation at the discretion of State and Federal Cooperative officials.

4. Your Committee further recommends that all States enter into cooperative agreements with A.D.E. officials for the purpose of establishing Pilot Programs to develop Validated Brucellosis-Free Areas.

UNIFORM PLANS FOR ERADICATING SWINE BRUCELLOSIS

A. Validation of Swine Herds as Brucellosis-Free

Validation is made on the basis of two consecutive negative tests on the entire breeding herd 30-90 days apart. This includes all breeding animals 6 months of age and over. This validation holds for 12 months. Revalidation is made annually by the passing of a single negative test on the entire herd.

B. Plans for Eradication in Infected Herds

Plan 1. This plan is recommended for commercial herds.

1. Market the entire herd of swine for slaughter as soon as practicable.

2. Clean and disinfect houses and equipment.
3. Replace with stock from Validated Brucellosis-Free herds, placing them on clean ground (free of swine for at least 60 days).
4. Following two consecutive negative tests 30-90 days apart, the herd is eligible for validation.

Plan 2. This plan is recommended for use in purebred herds where it is desirable to retain valuable blood lines.

1. Separate pigs from sows at 42 days of age or younger and isolate.
2. Market infected herd for slaughter as soon as practicable. If sows are held for later litters, complete isolation is essential.
3. Test the gilts to be used for the following breeding season about 30 days before breeding. Save only those gilts which are negative. Breed only to negative boars.
4. Retest the gilts after farrowing and before removing them from individual farrowing pens. Should reactors be found, they should be segregated from the remainder of the herd. Select only pigs from negative sows for breeding gilts.
5. If herd is not negative at this time, the process is repeated. When the entire herd passes two consecutive negative tests not less than 90 days apart, it becomes eligible for validation.

Plan 3. This plan is not recommended in general but has been found useful in herds where only a few reactors are found and where no clinical symptoms of brucellosis have been noted.

1. Remove reactors from farms.
2. Retest herd at 30-day intervals, removing reactors, until entire herd is negative.
3. Two negative tests, not less than 90 days apart, qualify the herd for validation.
4. If the herd is not readily freed of infection, abandon this plan in favor of Plan 1 or Plan 2.

C. Accessory Regulations

1. Blood samples are to be taken by approved accredited veterinarians.
2. Reactors must be sold for immediate slaughter.
3. Replacement swine may be added without test if procured directly from a Validated Brucellosis-Free Herd.
4. All other replacement breeding animals shall have passed a negative agglutination test and be held in isolation until passing a second negative agglutination test. The second test shall be at least 30 days after the first, in the case of boars and open gilts, or after farrowing in the case of bred sows and gilts.

5. All swine on the farm kept for feeding purposes shall be segregated from the breeding herd until moved for slaughter.
6. Classification of herds and animals:
 - (A) Negative animal from a herd of unknown or infected status means an animal that disclosed no agglutination in test dilutions of 1/25 or higher.
 - (B) Negative animal from a validated herd is one showing a reaction no greater than incomplete in 1/100 dilution.
 - (C) Negative herd means a herd that discloses no animal reacting more than incomplete in dilutions of 1/100.
 - (D) Reactor animal means an animal that discloses a reaction of complete in the dilution of 1/100 or higher.
 - (E) Infected herd means a herd that discloses one or more animals reacting complete in the dilution of 1/100 or higher, then any animal in the herd showing a reaction of complete in dilution of 1/25 or higher shall be considered a reactor.

I would call this National Committee's attention to the fact that the above report as I have given it to you today was unanimously approved by the United States Livestock Sanitary Association and has since been approved by the ARS of the United States Department of Agriculture, and the changes will be so noted in the 1962 revision of the Uniform Methods and Rules which are being published by the ARS, U. S. Department of Agriculture, and will soon be distributed for reference purposes.

I would also call your attention to the personnel of the Brucellosis Committee of the United States Livestock Sanitary Association. I do this because I feel that all of us should recognize that this Committee represents all areas of our United States, as well as all facets of the industry. The makeup of the Committee is as follows:

R. W. Smith, Concord, N. H., Chariman; J. S. Brenner, Grant, Montana; J. B. Finley, Jr., Encinal, Texas; R. G. Garrett, Texas State House, Austin, Texas; D. A. Hill, Columbus, Ohio; W. D. Knox, Fort Atkinson, Wisconsin; R. Laramore, Cheyenne, Wyoming; C. A. Manthei, Ames, Iowa; J. L. McAuliff, Cortland, New York; R. J. McClenaghan, Ottawa, Ontario, Canada; S. H. McNutt, Madison, Wisconsin; C. K. Mingle, Washington, D. C.; L. A. Rosner, Jefferson City, Missouri; J. V. Smith, Hartford, Connecticut; J. E. Stuart, Sacramento, California; W. C. Tobin, Denver, Colorado; A. O. Wilson, St. Xavier, Montana.

A REVIEW OF SWINE BRUCELLOSIS RESEARCH
Subcommittee on Research
by
C. A. Manthei

In preparation of a report of this kind, it frequently becomes difficult to assemble information that will be most helpful to the industry and to regulatory personnel in solving the problems that are inherent in the prevention, control and eradication of a disease. It was the consensus of the members of the Subcommittee on Research that this year's report should be concerned with swine brucellosis. Emphasis was placed on wider dissemination of the facts about the disease to the swine industry, the veterinary medical profession and the public, and research should be initiated to improve diagnostic procedures for detection of brucellosis in swine.

Unless we have overlooked the subject of swine brucellosis in some of the Proceedings of the National Brucellosis Committee, this organization has not recommended any definite proposals for the control and eradication of this disease. The Research Subcommittee reviewed what was known about swine brucellosis in 1950 and the industry has had speakers discuss the subject at four different meetings. This approach is necessary before any action is initiated, but we must make a concerted effort to initiate action as soon as possible if we hope to progress beyond the talking stage.

There appears to be little need of indulging further in generalizations, so we will proceed with our assignment.

Facts About Swine Brucellosis

Etiology: The primary cause of brucellosis in swine is Brucella suis, however Brucella abortus and Brucella melitensis also are capable of producing infection in swine. Most researchers recognize three types of Brucella suis, which are identified as type I, type II, and type III. All types show similar reactions to most biochemical tests and different reactions to only a few of the tests. They appear to have a common antigenic structure and have approximately the same virulence for guinea pigs and swine.

Type I is the most frequent cause of swine brucellosis in the United States. It, however, has been isolated from both cattle and goats, but the incidence of infection in these animals appears to be low and clinical signs are usually absent.

Type II has not been isolated from swine of this country, but is the principal cause of swine brucellosis in Denmark. It also is found in the wild hares of Europe.

Type III has been isolated frequently from swine and humans in the Middle West. It has been classified by conventional methods as Br. melitensis, but recent research strongly suggests that it should be classified as Br. suis, type III.

Susceptibility of Swine: Swine of all ages and both sexes are susceptible to Br. suis. Pregnant sows and mature boars however are the most susceptible. Susceptibility of suckling pigs increases progressively after pigs are four weeks of age. Swine are relatively less susceptible to Br. melitensis and Br. abortus than to Br. suis.

Transmission: Brucella suis is spread most frequently through the alimentary and genital tracts, but it also can produce infection through the mucous membranes of the eyes and upper respiratory tract, skin or wounds. Swine brucellosis is more likely to be spread by natural service

than bovine brucellosis. Consequently infected boars are a very significant means of widespread dissemination of the disease. Moreover, genital infection in boars usually persists throughout their serviceable life. Because of the habits of swine, the opportunity for ingestion and inhalation of Br. suis on contaminated premises is excellent.

Clinical signs: The clinical signs of swine brucellosis vary considerably in infected herds. Signs most usually observed are abortions, weak or stillborn pigs, orchitis, infertility, lameness, and posterior paralysis. Abortions have occurred as early as 22 days and as late as 106 days after conception. Early abortions are most frequently associated with genital transmission of Br. suis and usually are unnoticed by the owner. Consequently undetected early abortions are misinterpreted as infertility. Moreover, clinical signs occasionally are absent in herds where the disease has existed for a long time. It is a situation of this kind that misleads an owner into believing that brucellosis is not present in his herd. Consequently the sale of breeding stock from such a herd into highly susceptible herds results in rapid spread of the disease, and development of the usual clinical manifestations.

Localization and Persistences of Infection: The principal tissues of swine in which Br. suis localizes are lymph nodes of the head and pelvis, spleen, uterus, testicles and seminal vesicles. It is not unusual for boars and sows to remain infected for three years or longer. Brucella suis has been isolated from lymph nodes and genital organs from swine that had been infected for as long as five years. The organisms frequently produce abscesses in the testicles and seminal vesicles, and occasionally in the uteri, vertebrae joints and spleen.

Immunity - Vaccines: Immunity to brucellosis has been demonstrated in swine that have recovered from infection caused by virulent Br. suis. A vaccine, prepared from a strain of Br. suis of reduced virulence, produced a serviceable immunity for one year, however, it also produced a self-limiting infection in a few vaccinated pigs. The uncertainty of being able to reduce and stabilize the virulence of this strain and the time and expenses involved in developing a safe product appeared to be justifiable reasons for discontinuing the research. Strain 19 has been used to vaccinate pigs, but it was totally ineffective in preventing infection with Br. suis. Recently Cedro et. al. of Argentina reported that a vaccine prepared from attenuated Br. abortus and glucid lipid antigen of heat-killed Br. suis induced sufficient protection in swine to prevent clinical signs of brucellosis. Carefully designed research however must be conducted to fully evaluate the ability of this vaccine to prevent infection before it can be seriously considered for use as a preventive measure. It is the opinion of this subcommittee that vaccination against swine brucellosis is not economically sound in this country, because of the low prevalence of infection and the rapidity with which the disease can be eradicated from a herd.

Treatment: There is no specific treatment for brucellosis of swine. Nevertheless, treatments such as those used for brucellosis of humans may be effective, but the cost would be prohibitive and the risk of residual infection would be too great.

Diagnosis: We now come to the most controversial subject of this report. Some of the subcommittee members, as well as other persons, believe there is a serious need for better diagnostic tests than are now available.

There appears to be no question about the need for more research to develop new, or to improve present diagnostic procedures, but there will have to be a radical change in attitudes of both industry and research institutions if such a goal is to be realized. To the best of our knowledge there is no research being done at this time on swine brucellosis in this country.

One pertinent question is - do we believe it is necessary to develop a new or better diagnostic tests before a swine brucellosis control and eradication program is initiated? In our opinion we have adequate diagnostic tests to initiate a sound program. We have used the tube and plate sero-agglutination tests for the control and eradication of bovine brucellosis, because we were willing to recognize the advantages as well as limitations of the tests. These tests have fulfilled all expectations in the control and eradication of bovine brucellosis. They will do likewise in the control and eradication of swine brucellosis if intelligently applied. These are man-made tools and must be intelligently used by men for them to be effective. All of you know that neither the tube nor plate sero-agglutination test has identified all of the infected cattle, because if they had we now would not have problem herds. Each of these tests was designed to detect Brucella agglutinins in the blood serum, but they cannot do this if the agglutinins have not reached the diagnostic level during the incubation stage of infection or if the agglutinins have receded below the diagnostic level during the chronic stage of infection. Too frequently we have a tendency to blame a test for things that happen in the animal during the natural course of brucellosis. If we are sincerely interested in eradicating swine brucellosis, let us approach the job objectively with the tools we have available.

Furthermore, do not underestimate the value of other recently developed tests for detecting the infected animal in an infected herd. Two of these are the heat inhibition test and the acidified antigen test. In addition we have the well known complement fixation test, Coombs test and conglutination test, any one or all of which may be applicable. It may be surprising to find how much research may be stimulated if we spend our efforts getting on with the task instead of indulging in the pastime of giving excuses why a swine brucellosis program cannot be developed.

It is unfortunate that so much effort and time has been expended on belaboring the inefficiency of the present diagnostic tests and so little time and effort on developing realistic procedures for locating the infected herd. Collecting blood samples from each herd of swine on every by-road is not realistic from a manpower or a budget consideration. Therefore, most infected herds will have to be found by other means. Consideration must be given to locating infected commercial or farm herds by collecting blood samples from stags, cull sows and boars at sale barns and slaughter establishments. Infected purebred, linebred and hybrid herds also can be located by collecting blood samples of breeding boars, gilts and sows at sale barns or by testing at the farms of origin. In order for these procedures to be effective it will be necessary to develop a system of identifying swine relative to their herds of origin and to develop a register of producers of breeding stock. Developing the principles of a workable and effective control and eradication program will require the leadership and the support of all segments of swine industry.

Control and Eradication: Three plans of control and eradication were developed by the U. S. Livestock Sanitary Association and the U. S. Department of Agriculture several years ago, and appear to cover most swine raising situations. If they do not, then let us get at the business of developing plans that will be applicable. We have much more knowledge about swine brucellosis now than we had about bovine brucellosis when that program was begun; consequently there is no reason why a program for the control and eradication of swine brucellosis should not be initiated as soon as the mechanism of operation can be developed.

Public Health Aspects: It is not the purpose or desire of this subcommittee to assume the responsibilities of the Subcommittee on Public Health, but we would be neglectful if we did not point out the seriousness of the persistent number of cases of human brucellosis of Br. suis origin that have occurred in Iowa during the past several years. No industry or profession can ignore their responsibility to the public, whether it be for supplies of wholesome food or prevention of animal diseases communicable to humans. If the swine industry and the veterinary profession do not take corrective measures against the problem of Br. suis infection in meat handlers, the recipients of our folly will do it for us.

Respectfully submitted,

C. A. Manthei, Chairman
Norman B. McCullough
Robert K. Anderson
I. H. Borts
S. H. McNutt

HUMAN BRUCELLOSIS IN THE UNITED STATES

Subcommittee on Public Health

by

James H. Steele, Chairman*

The reported number of human brucellosis cases fell below 600 in 1961, the lowest since the disease was recognized as a public health problem. Graph 1 depicts the annual incidence of human brucellosis from 1947 (6,321 cases) through 1961 (580 cases) based on preliminary reports for 1961. There has been a drop of more than 90 percent since the beginning of the National Brucellosis Control campaign in 1950. The decline in recent years has not been as precipitous as earlier; from 1957 to 1961 it has been less than 50 percent. This is explained in part by the constant level of swine brucellosis which has remained a problem on the farm and is now the principal source of occupational human disease. The incidence of human infection will probably continue to hold at about the present level until the disease in swine is brought under control and eventually eradicated.

The rate of infection in swine is estimated to be between 1 and 2 percent, with about 5 percent of herds affected. If the lower estimate of 1 percent is applied against the 88,000,000 pigs marketed in the United States in 1961, it can readily be determined that about 880,000 Brucella-infected swine were handled and processed. It has been previously estimated that some 850,000 persons are exposed in handling these animals on the farm and in commercial channels. There are about 1,847,000 farms in the United States on which pigs are raised. About 131,000 herds are infected, with the same number of farm families at risk of infection, or some 579,000 people (see Appendix 2).

*Other members of Subcommittee:

S. P. Lemback, M.D.

Robert Barr, M.D.

Stanley Hendricks, D.V.M., M.P.H.

W. M. Decker, D.V.M., M.S.

The distribution of human brucellosis (see maps) continues to be highest in the upper Midwest, with Iowa reporting the greatest number of cases (Table 3) followed by Illinois and Kansas. This pattern has persisted since 1958. Nebraska, South Dakota and Minnesota are other States which report more cases than would be expected from areas where bovine brucellosis is being rapidly eliminated. Other areas of high incidence are Virginia, Arkansas, Louisiana, Texas and California. Tennessee, Georgia, and New York likewise had more human cases than would be expected, even though bovine brucellosis has been reduced in those States. Florida reported more cases in 1961 than they had since 1957. Most of the cases in the South are related to persons handling infected animals and the ingestion of milk products from diseased animals, while in the North and West, packing house workers and butchers were among those infected, although milk was involved in some cases.

State Summaries

Arkansas reported 19 cases in 1961. Nearly all of these occurred among farmers, farm housewives or farm children. In the latter two categories, raw milk was thought to be the major source of infection. Four cases were attributed to the practice of veterinary medicine; three cases were in lay assistants.

California had 20 reported cases, most of which involved raw milk as the vehicle of the Brucella organism. Three cases were in students who had histories of working on farms and drinking raw milk. Two cases were among veterinarians, one of whom accidentally inoculated himself with Strain 19 Brucella vaccine.

Georgia reported 10 cases, but their veterinary epidemiologist estimates that they had twice that number, most of which are thought to be due to Br. suis. The reported cases were among farmers, hog buyers and packing house workers. One veterinary meat inspector was also identified as being infected. Veterinary assistants were among the reported cases. Raw milk was not involved in any of the reported cases.

Hawaii reported only one case of human disease; this was due to Br. suis. Swine brucellosis has been identified in garbage-fed droves, where orchitis is seen in boars and abortions are common in sows.

Illinois had an interesting division of cases. Almost one-half of the cases were described as being chronic; these occurred in veterinarians, farmers, farm wives, packers and retired persons. The acute cases were mainly among livestock farmers and packing house butchers and handlers. Two veterinarians were among those acutely ill. Only three cases, all housewives, had their source of infection identified as raw milk.

Indiana reported only five cases; two cases in butchers were due to Br. suis. Two children, 9 and 14 years, residing in an urban area were infected by drinking raw milk. The fifth case was in a farmer who had a positive reactor cow in his herd.

Iowa had a total of 219 cases of which epidemiological data was available on 178. Swine were the principal source of infection, being involved in at least 114 cases and suspected in 39 other cases, while cattle were the source in only 40 cases. Raw milk was thought to be the cause of infection among students and children. Packing plant workers

were involved more than any other occupational group; a total of 122 cases were reported. Occupational disease among farmers is down on the basis of these reports. Only 35 cases were reported. It is thought that many infections among farmers were not reported as such. Only two cases were identified in veterinarians, one of whom was a meat inspector.

Kansas reported 57 cases of human disease among farmers (11), housewives (12), children (3), veterinarians (14), and various individuals (17) including butchers, dairy plant men and city dwellers. Raw milk was mentioned as a possible source of infection in 13 cases. The large number of veterinarians affected indicates that disease is widespread among cattle and swine.

Louisiana had only 12 cases reported, of which 6 were attributed to raw milk products. Most of these cases were on farms where diseased cattle were kept.

Minnesota had 18 cases, of which 10 occurred in packers and butchers. Two were on farms where cattle had aborted. Two veterinarians were infected; one had been exposed in Australia and the other was exposed by accidental inoculation of Strain 19 vaccine. A swine trader was listed among the cases.

Nebraska continues to have a high incidence of human disease. Most of the cases on which any epidemiological information is available indicate that the highest incidence was among packers. Raw milk and ice cream were involved in 11 incidents. Two veterinarians were affected.

North Carolina, the first State to clean up its bovine brucellosis problem, sent histories of 8 human infections. Nearly all of these were among people handling or processing swine.

South Dakota reported 18 cases, which were mainly among farmers and their families and a few cases among packers. Two cases were in veterinarians.

Virginia reported 18 cases which are divided among farmers, their families and packers. Most of the packers handled pork products.

Epidemiological Summaries

The tabulation of epidemiologic histories (Tables 4, 5, 6 and 7) for 1960 and 1961 reveal that packing house workers have the highest incidence of reported cases, and that swine are the most probable source of infection. In 1960, there were 221 cases among packing house employees--about 42 percent of the total 555 cases on which data was submitted to the Communicable Disease Center. The total number of cases in packing houses was lower in 1961, 174 cases, but the percentage (42 percent) remained the same for the 413 cases reported. The farm group likewise declined from 102 in 1960 (18.5 percent) to 80 in 1961 (19 percent). Reported cases among housewives and children fell from 80 (14 percent) to 53 (12 percent). Veterinary and laboratory infections were 34 (6 percent) and 23 (5.5 percent) respectively. Cases among children under 12 rose from 4 to 11.

Recrudescence of old cases (Tables 5 and 7) accounted for more than 10 percent of the annual totals. These cases are usually found among retired farmers and housewives. In States that have been free of brucellosis for some time, recrudescence of old cases is seldom reported.

The cause of recrudescence is not clearly understood, although it is well known that persons who have had acute attacks of brucellosis and recovered are very sensitive to either the living or dead Brucella,

which can cause an exacerbation of the characteristic signs and symptoms of disease.

Raw milk as a source of infection is largely a single family event, usually attributed to the family cow. Infections attributed to raw milk dropped from 31 to 24 between 1960 and 1961.

The seasonal distribution of cases from 1952-1961 is summarized in Table 8 and Figure 1. The highest incidence is recorded during the summer months. It is difficult to interpret this finding because of the insidious onset of the disease and the time the patient first saw a physician. Various explanations have been offered:

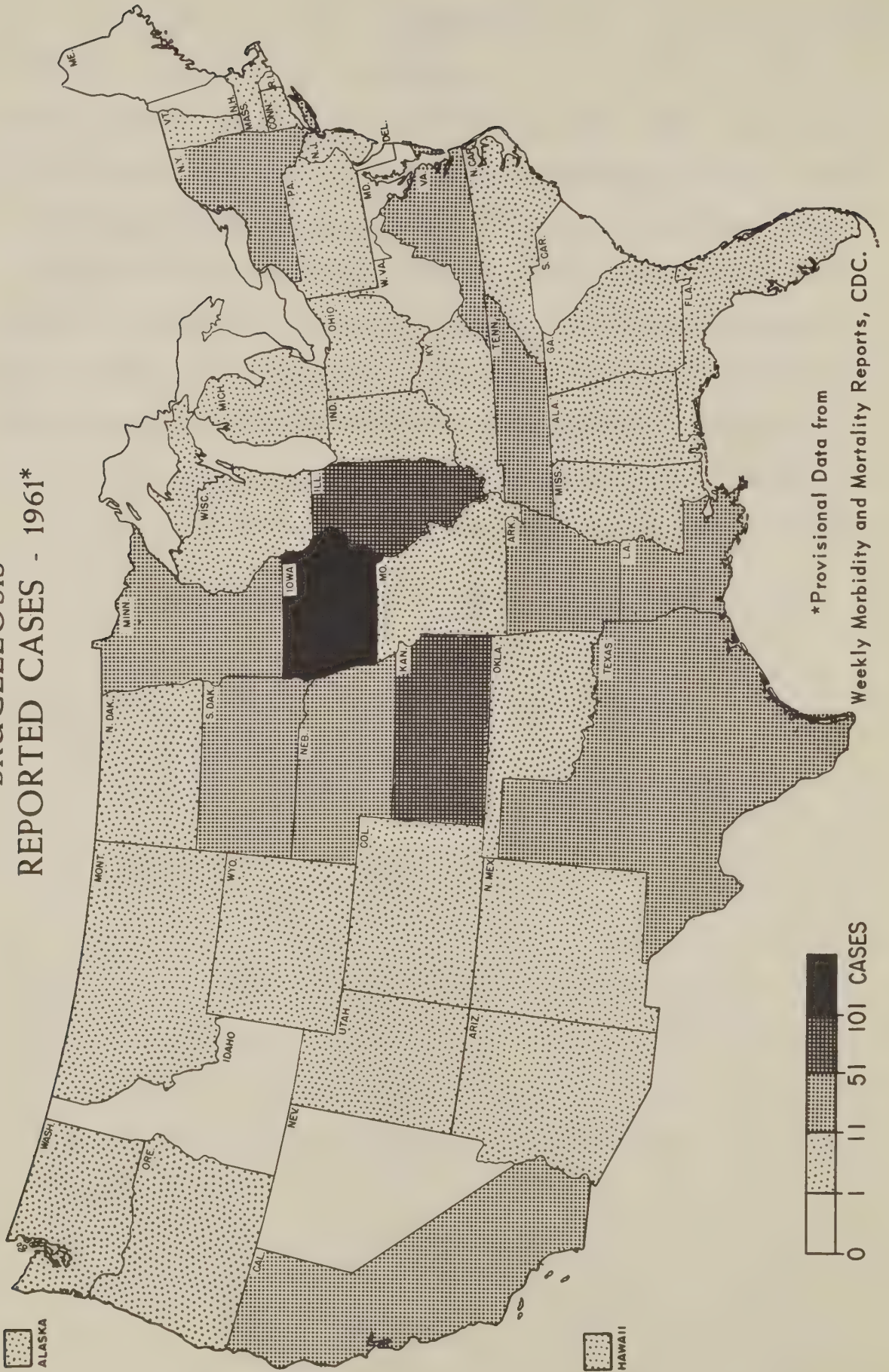
1. Springtime exposure to infected tissues when animals are born.
2. Late spring and early summer exposure to aborted animals.
3. Exhaustion due to long hours during springtime planting.
4. Animals which have aborted being sent to market.
5. Exacerbation of old cases.
6. Veterinary practice demands always increase in the spring.
7. Farmers and those busy with livestock in the spring finally get around to seeing their physicians.

The peak of cases in April 1960 is attributed to an accumulation of cases which occurred in a large pork processing plant over a six-month period. Otherwise, 1960 was similar to the 10-year trend, as was 1961. Examination of the distribution of infection among packers does not reveal any consistent pattern, and may be misleading in events such as the April 1960 report.

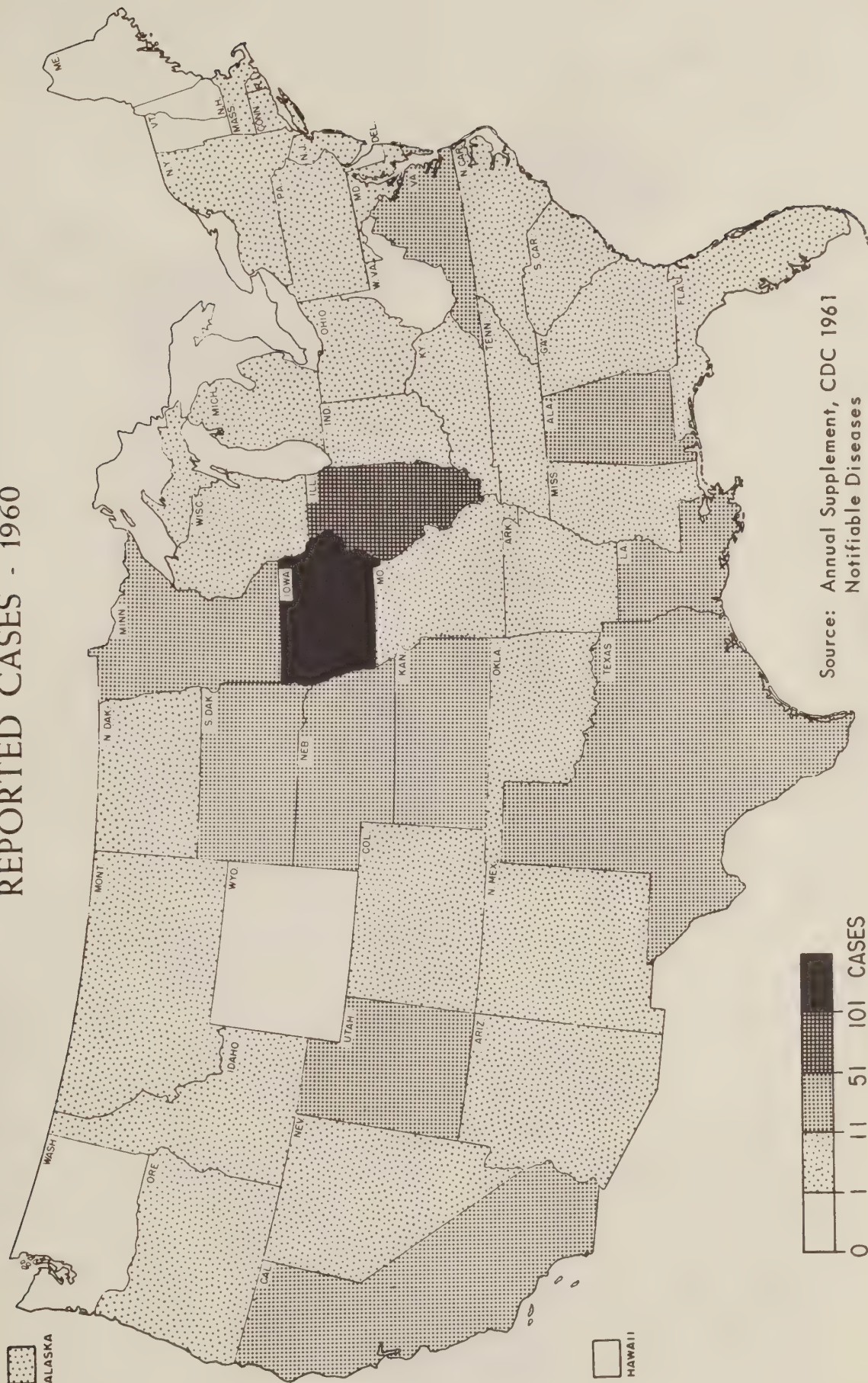
Conclusions

The national brucellosis eradication program has made considerable progress in recent years in the control of the bovine disease. These efforts must be continued and even intensified in some States where the problem remains; but unless the swine brucellosis problem gets the attention and support that is needed, the health of a large segment of our population who are in contact with infected pigs will be in jeopardy. The two most vulnerable groups are the hog farmers and the pork processors, some 850,000 persons. The successful conclusion of the national brucellosis campaign is dependent on the control and eradication of swine brucellosis.

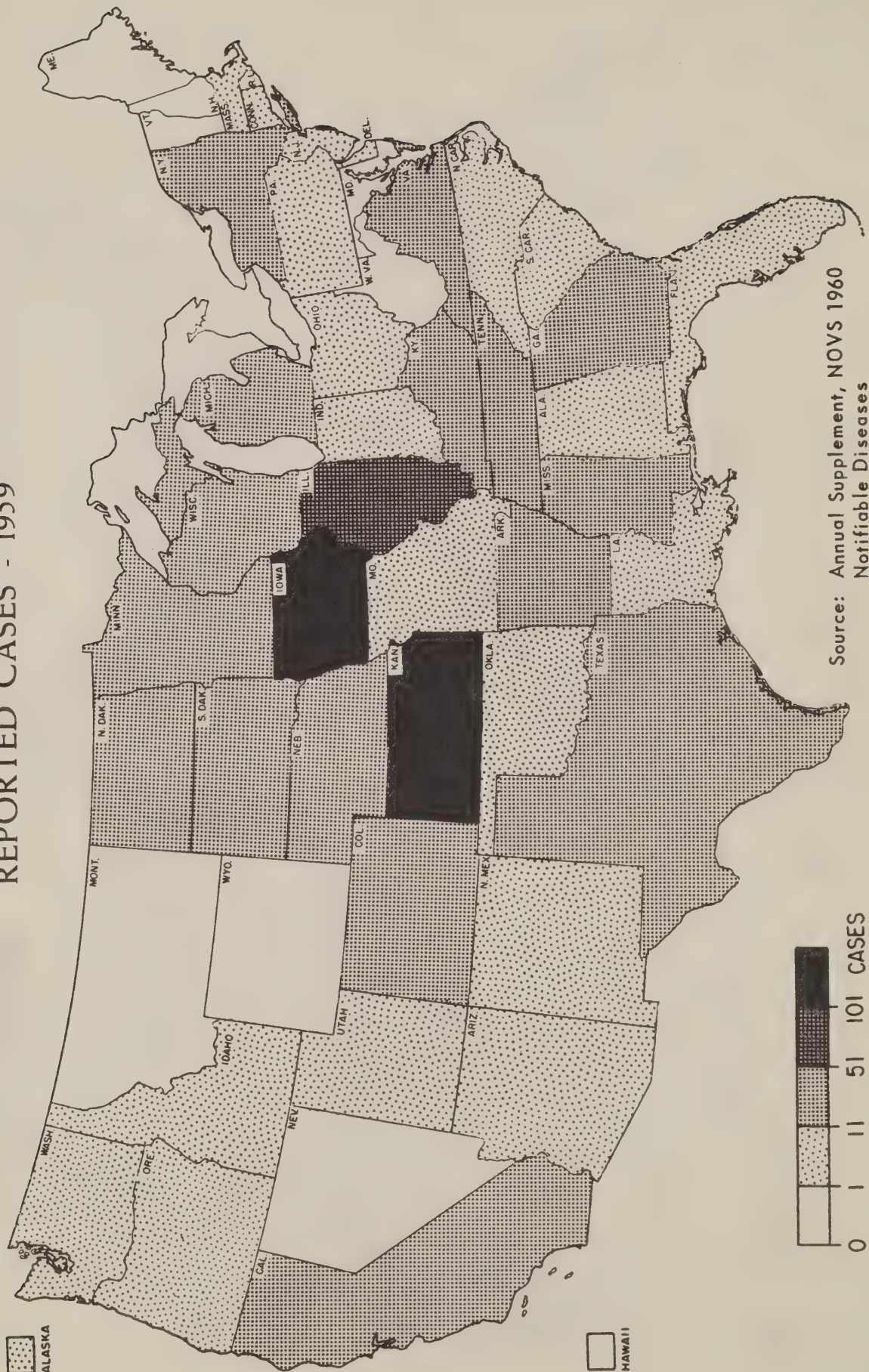
BRUCELLOSIS REPORTED CASES - 1961*



BRUCELLOSIS REPORTED CASES - 1960

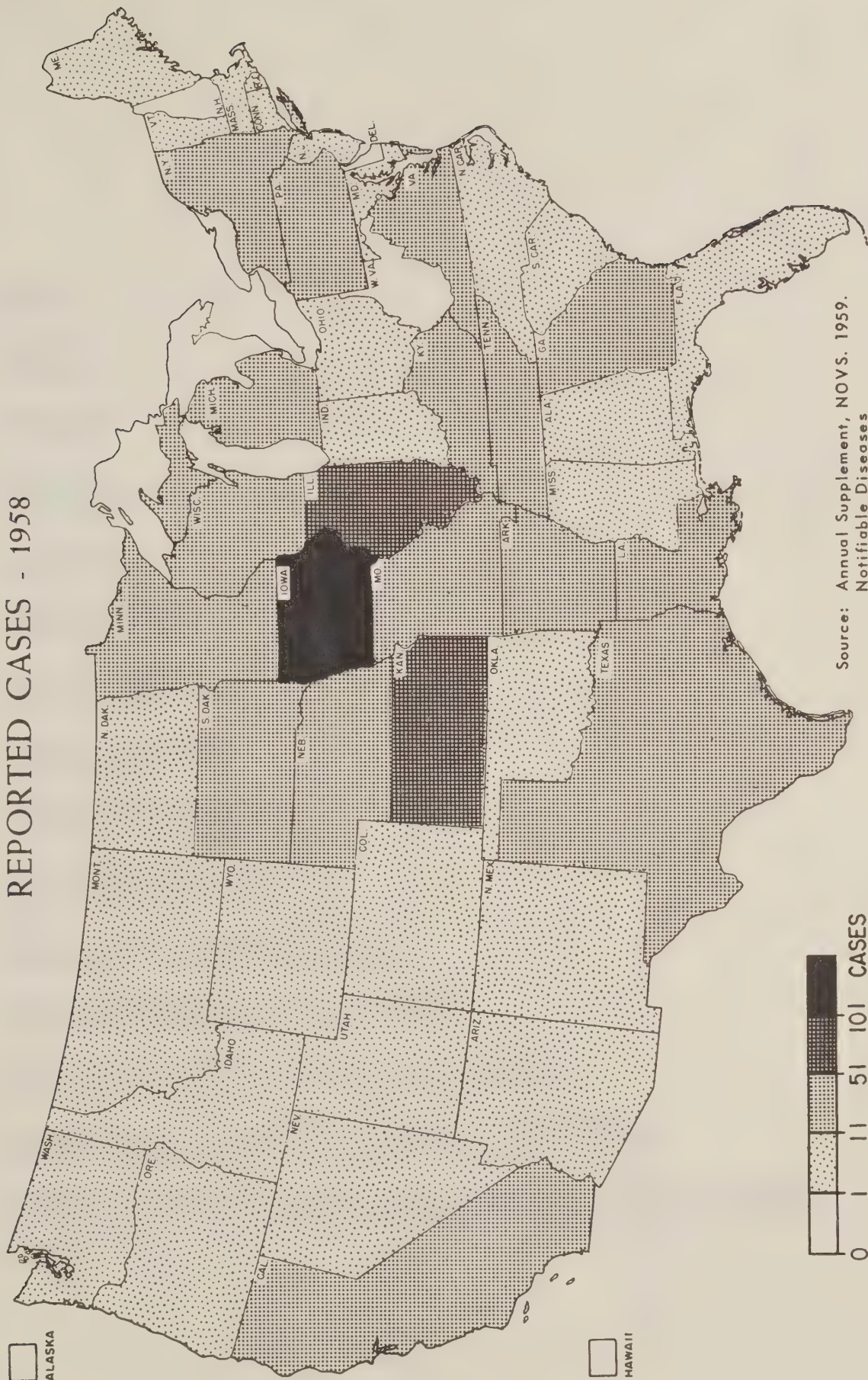


BRUCELLOSIS REPORTED CASES - 1959



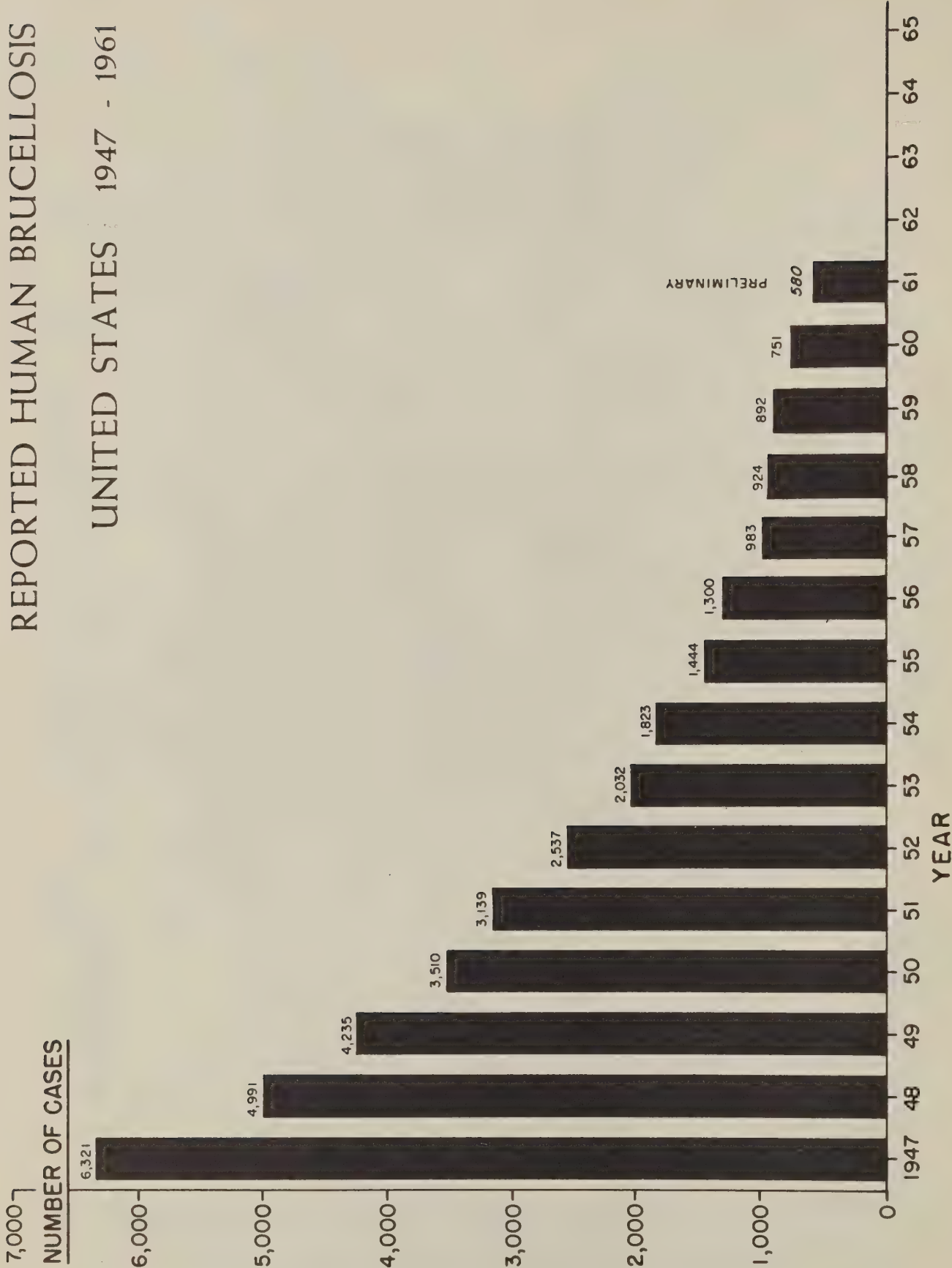
BRUCELLOSIS

REPORTED CASES - 1958



REPORTED HUMAN BRUCELLOSIS

UNITED STATES : 1947 - 1961



REV. JAN. '62

ATLANTA, GA. APRIL, 1958

DHEW - PHS - CDC

TABLE 1

DHEW-PHS-CDC-2-62

REPORTED BRUCELLOSIS MORBIDITY

| STATE | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Alabama | 74 | 76 | 43 | 55 | 37 | 29 | 18 | 11 | 10 | 10 | 2 | 7 | 16 |
| Arizona | 18 | 18 | 16 | 8 | 12 | 1 | 14 | 6 | 4 | 5 | 2 | 6 | 3 |
| Arkansas | 44 | 30 | 34 | 37 | 32 | 47 | 40 | 26 | 29 | 22 | 19 | 12 | 9 |
| California | 164 | 126 | 120 | 100 | 115 | 68 | 48 | 56 | 40 | 37 | 35 | 11 | 29 |
| Colorado | 249 | 99 | 55 | 39 | 20 | 8 | 17 | 12 | 4 | 1 | 5 | 11 | 2 |
| Connecticut | 98 | 78 | 43 | 22 | 15 | 27 | 17 | 5 | 4 | 4 | 2 | 1 | 2 |
| Delaware | 2 | 2 | — | 2 | — | — | 1 | — | — | — | — | 1 | — |
| District of Columbia | 3 | — | — | 4 | 1 | 1 | — | 2 | — | — | — | — | — |
| Florida | 74 | 86 | 36 | 10 | 10 | 10 | 9 | 12 | 12 | 17 | 5 | 5 | 3 |
| Georgia | 133 | 122 | 95 | 84 | 64 | 63 | 45 | 35 | 39 | 20 | 25 | 32 | 5 |
| Idaho | 30 | 29 | 24 | 30 | 14 | 9 | 13 | 6 | 7 | 1 | 1 | 3 | 3 |
| Illinois | 513 | 514 | 442 | 445 | 294 | 243 | 203 | 140 | 133 | 120 | 83 | 71 | 74 |
| Indiana | 70 | 44 | 42 | 19 | 10 | 27 | 13 | 9 | 11 | 10 | 8 | 9 | 9 |
| Iowa | 412 | 377 | 549 | 767 | 724 | 556 | 351 | 405 | 360 | 214 | 283 | 361 | 308 |
| Kansas | 146 | 120 | 134 | 65 | 75 | 59 | 42 | 23 | 48 | 57 | 71 | 112 | 48 |
| Kentucky | 21 | 23 | 19 | 17 | 12 | 11 | 15 | 22 | 23 | 20 | 12 | 12 | 6 |
| Louisiana | 37 | 30 | 32 | 48 | 23 | 18 | 49 | 29 | 29 | 19 | 15 | 10 | 14 |
| Maine | 12 | 12 | 12 | 4 | 8 | 4 | 1 | 2 | 1 | 2 | 1 | — | 1 |
| Maryland | 57 | 46 | 44 | 39 | 12 | 13 | 6 | — | 7 | 3 | 1 | — | 1 |
| Massachusetts | 39 | 31 | 22 | 10 | 18 | 15 | 13 | 9 | 15 | 8 | 7 | 1 | 1 |
| Michigan | 219 | 193 | 93 | 67 | 52 | 68 | 111 | 60 | 52 | 16 | 24 | 15 | 5 |
| Minnesota | 302 | 355 | 283 | 189 | 139 | 133 | 151 | 116 | 63 | 51 | 38 | 20 | 15 |
| Mississippi | 61 | 66 | 61 | 67 | 46 | 40 | 35 | 21 | 13 | 6 | 8 | 15 | 9 |
| Missouri | 82 | 115 | 80 | 67 | 45 | 44 | 54 | 39 | 39 | 41 | 41 | 8 | 8 |
| Montana | 4 | 13 | 18 | 9 | 9 | 8 | 7 | 6 | 1 | 5 | 3 | — | 3 |
| Nebraska | 89 | 46 | 15 | 10 | 3 | 3 | 32 | 8 | 52 | 63 | 35 | 23 | 20 |
| Nevada | 1 | 4 | 4 | 3 | — | — | 1 | — | — | — | 2 | — | 1 |
| New Hampshire | 8 | 3 | 3 | 1 | — | — | 1 | 1 | — | — | — | — | — |
| New Jersey | 49 | 35 | 35 | 13 | 16 | 10 | 6 | 1 | 2 | 4 | 4 | 5 | 3 |
| New Mexico | 6 | 8 | 1 | — | 3 | 2 | 12 | 3 | 2 | — | 3 | 1 | 1 |
| New York | 248 | 146 | 149 | 89 | 77 | 51 | 42 | 23 | 9 | 7 | 13 | 17 | 9 |
| North Carolina | 16 | 25 | 21 | 28 | 21 | 5 | 3 | 2 | 10 | 12 | 7 | 4 | 4 |
| North Dakota | 5 | 29 | 38 | 20 | 7 | 13 | 15 | 20 | 26 | 23 | 10 | 17 | 9 |
| Ohio | 191 | 137 | 41 | 23 | 11 | 15 | 9 | 10 | 12 | 9 | 6 | 3 | 4 |
| Oklahoma | 86 | 144 | 102 | 71 | 68 | 38 | 40 | 31 | 19 | 13 | 5 | 3 | 5 |
| Oregon | 39 | 45 | 45 | 9 | 7 | 7 | 10 | 10 | 4 | 2 | 8 | 1 | 3 |
| Pennsylvania | 95 | 115 | 79 | 78 | 42 | 15 | 18 | 18 | 17 | 15 | 11 | 8 | 6 |
| Rhode Island | 10 | 5 | 4 | 4 | 3 | 2 | 3 | 1 | 4 | — | 1 | — | 1 |
| South Carolina | 22 | 31 | 9 | 11 | 6 | 8 | 3 | 2 | 5 | 3 | 3 | 1 | 1 |
| South Dakota | 67 | 46 | 10 | 32 | 23 | 23 | 21 | 49 | 33 | 24 | 23 | 11 | 26 |
| Tennessee | 70 | 39 | 51 | 44 | 41 | 35 | 38 | 34 | 29 | 29 | 19 | 17 | 10 |
| Texas | 561 | 341 | 288 | 123 | 118 | 104 | 84 | 51 | 32 | 17 | 30 | 13 | 22 |
| Utah | 82 | 75 | 9 | 27 | 18 | 10 | 16 | 8 | 7 | 5 | 10 | 2 | 12 |
| Vermont | 36 | 3 | 7 | 45 | 32 | 20 | 13 | 4 | 14 | 4 | 5 | — | — |
| Virginia | 82 | 73 | 67 | 81 | 47 | 58 | 46 | 30 | 32 | 22 | 21 | 27 | 34 |
| Washington | 43 | 26 | 37 | 62 | 58 | 5 | 11 | 6 | 8 | 7 | 3 | 1 | — |
| West Virginia | 8 | 7 | 8 | 13 | 7 | 5 | 6 | 9 | 3 | 2 | — | — | — |
| Wisconsin | 302 | 239 | 185 | 140 | 138 | 91 | 116 | 68 | 32 | 31 | 12 | 13 | 5 |
| Wyoming | 11 | 8 | 5 | 8 | 4 | 10 | 4 | 3 | 4 | 2 | 2 | — | — |
| Totals | 4991 | 4235 | 3510 | 3139 | 2537 | 2032 | 1823 | 1444 | 1300 | 983 | 924 | 892* | 751 |

SOURCE: Annual Supplements, NOVS. 1948-1960.
Notifiable Diseases

* Included two cases reported from Alaska in 1959 and one case in 1960.

TABLE 2

REPORTED BRUCELLOSIS MORBIDITY PER 100,000 POPULATION ANNUAL AVERAGE CASE RATE

| STATE | 1948-1950 | 1951-1953 | 1954-1956 | 1957-1959 | 1960 |
|----------------------|-----------|-----------|-----------|-----------|------|
| Alabama | 2.1 | 1.3 | 0.4 | 0.2 | 0.5 |
| Arizona | 2.4 | 0.8 | 0.8 | 0.4 | 0.2 |
| Arkansas | 2.0 | 2.1 | 1.8 | 1.0 | 0.5 |
| California | 1.3 | 0.8 | 0.4 | 0.2 | 0.2 |
| Colorado | 10.3 | 1.6 | 0.7 | 0.3 | 0.1 |
| Connecticut | 3.6 | 1.0 | 0.4 | 0.1 | 0.1 |
| Delaware | 0.3 | 0.3 | 0.1 | 0.1 | 0.0 |
| District of Columbia | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 |
| Florida | 2.4 | 0.3 | 0.3 | 0.2 | 0.1 |
| Georgia | 3.5 | 1.9 | 1.1 | 0.7 | 0.1 |
| Idaho | 4.9 | 3.1 | 1.4 | 0.2 | 0.4 |
| Illinois | 5.7 | 3.7 | 1.7 | 0.9 | 0.7 |
| Indiana | 1.3 | 0.5 | 0.3 | 0.2 | 0.2 |
| Iowa | 17.3 | 25.1 | 13.7 | 10.1 | 11.2 |
| Kansas | 6.9 | 3.3 | 1.8 | 3.8 | 2.2 |
| Kentucky | 0.7 | 0.4 | 0.7 | 0.5 | 0.2 |
| Louisiana | 1.3 | 1.1 | 1.2 | 0.5 | 0.4 |
| Maine | 1.3 | 0.6 | 0.1 | 0.1 | 0.1 |
| Maryland | 2.1 | 0.8 | 0.2 | 0.04 | 0.03 |
| Massachusetts | 0.7 | 0.3 | 0.3 | 0.1 | 0.02 |
| Michigan | 2.7 | 0.9 | 1.0 | 0.2 | 0.1 |
| Minnesota | 10.7 | 5.1 | 3.4 | 1.1 | 0.4 |
| Mississippi | 3.0 | 2.3 | 1.1 | 0.4 | 0.4 |
| Missouri | 2.4 | 1.3 | 1.1 | 0.7 | 0.2 |
| Montana | 2.1 | 1.5 | 0.7 | 0.4 | 0.4 |
| Nebraska | 3.8 | 0.4 | 2.2 | 2.8 | 1.4 |
| Nevada | 1.9 | 0.5 | 0.1 | 0.2 | 0.4 |
| New Hampshire | 0.9 | 0.1 | 0.1 | 0.0 | 0.0 |
| New Jersey | 0.8 | 0.3 | 0.1 | 0.1 | 0.05 |
| New Mexico | 0.8 | 0.3 | 0.7 | 0.2 | 0.1 |
| New York | 1.2 | 0.5 | 0.2 | 0.1 | 0.1 |
| North Carolina | 0.5 | 0.4 | 0.1 | 0.2 | 0.1 |
| North Dakota | 4.0 | 2.1 | 3.2 | 2.6 | 1.4 |
| Ohio | 1.5 | 0.2 | 0.1 | 0.1 | 0.04 |
| Oklahoma | 5.3 | 2.7 | 1.4 | 0.3 | 0.2 |
| Oregon | 3.0 | 0.5 | 0.5 | 0.2 | 0.2 |
| Pennsylvania | 0.9 | 0.4 | 0.2 | 0.1 | 0.1 |
| Rhode Island | 0.7 | 0.4 | 0.3 | 0.04 | 0.1 |
| South Carolina | 1.0 | 0.4 | 0.1 | 0.1 | 0.04 |
| South Dakota | 6.5 | 4.0 | 5.0 | 2.9 | 3.8 |
| Tennessee | 1.6 | 1.2 | 1.0 | 0.6 | 0.3 |
| Texas | 5.2 | 1.4 | 0.6 | 0.2 | 0.2 |
| Utah | 8.2 | 2.5 | 1.3 | 0.7 | 1.3 |
| Vermont | 4.1 | 8.6 | 2.8 | 0.8 | 0.0 |
| Virginia | 2.2 | 1.8 | 1.0 | 0.6 | 0.9 |
| Washington | 1.5 | 1.7 | 0.3 | 0.1 | 0.0 |
| West Virginia | 0.4 | 0.4 | 0.3 | 0.03 | 0.0 |
| Wisconsin | 7.1 | 3.5 | 1.9 | 0.5 | 0.1 |
| Wyoming | 2.9 | 2.4 | 1.2 | 0.4 | 0.0 |
| Totals | 2.9 | 1.6 | 0.9 | 0.5 | 0.4 |

Alaska

0.4

Hawaii

0.0

* SOURCE: Annual Supplements, Notifiable Diseases. NOV. 1948-1960
Populations, Mid-yea. Estimates, Bureau of the Census.

TABLE 3
HUMAN BRUCELLOSIS - 1961*

| STATE | 1961 |
|----------------------|------|
| Alabama | 2 |
| Alaska | 1 |
| Arizona | 3 |
| Arkansas | 19 |
| California | 20 |
| Colorado | 3 |
| Connecticut | 4 |
| Delaware | - |
| District of Columbia | - |
| Florida | 10 |
| Georgia | 12 |
| Hawaii | 1 |
| Idaho | - |
| Illinois | 61 |
| Indiana | 5 |
| Iowa | 219 |
| Kansas | 54 |
| Kentucky | 3 |
| Louisiana | 12 |
| Maine | - |
| Maryland | - |
| Massachusetts | 2 |
| Michigan | 9 |
| Minnesota | 18 |
| Mississippi | 7 |
| Missouri | 3 |
| Montana | 3 |
| Nebraska | 29 |
| Nevada | - |
| New Hampshire | - |
| New Jersey | 2 |
| New Mexico | 2 |
| New York | 11 |
| North Carolina | 6 |
| North Dakota | 2 |
| Ohio | 4 |
| Oklahoma | 8 |
| Oregon | 2 |
| Pennsylvania | 3 |
| Rhode Island | - |
| South Carolina | - |
| South Dakota | 18 |
| Tennessee | 12 |
| Texas | 15 |
| Utah | 7 |
| Vermont | 1 |
| Virginia | 18 |
| Washington | 2 |
| West Virginia | - |
| Wisconsin | 7 |
| Wyoming | 3 |
| Total | 580 |

SOURCE: NOVS Weekly Morbidity and Mortality Reports

* PROVISIONAL DATA
DHEW-PHS-CDC

TABLE 4

HUMAN BRUCELLOSIS CASES - 1960*
BY OCCUPATION AND RESIDENCE

| OCCUPATION | RESIDENCE | | | | | | | | | Total |
|---------------------|-----------|----|------|-------|----|------|---------|---|------|-------|
| | Urban | | | Rural | | | Unknown | | | |
| | M | F | Unk. | M | F | Unk. | M | F | Unk. | |
| Packing House | 113 | 8 | | 24 | 1 | | 72 | 3 | | 221 |
| Rendering Plant | 3 | | | | | | | | | 3 |
| Stockyard | 1 | | | 2 | | | | | | 3 |
| Farm Workers | | | | | | | | | | |
| Livestock Farmers | 1 | | | 50 | | | | | | 51 |
| Dairy Farmers | | | | 31 | 1 | | | | | 32 |
| Farmers Unspecified | | | | 18 | 1 | | | | | 19 |
| Wives and Children | | | | | | | | | | |
| Housewives | | 22 | | | 35 | | | | | 57 |
| Students | 4 | 5 | | 5 | 5 | | | | | 19 |
| Children (under 12) | | 2 | | | 1 | | | 1 | | 4 |
| Professional | | | | | | | | | | |
| Veterinarians | 13 | 1 | | 6 | | | 1 | | | 21 |
| Other | 10 | | | 2 | 1 | | | | | 13 |
| Other Occupations | | | | | | | | | | |
| Meat Associated | 10 | | | 1 | 1 | | | | | 12 |
| Miscellaneous | 26 | 4 | | 8 | 2 | | | | | 40 |
| Not Stated | 10 | 17 | | 18 | 6 | | 8 | 1 | | 60 |
| Total | 191 | 59 | 0 | 165 | 54 | 0 | 81 | 5 | 0 | 555 |

* Includes cases with onsets in 1960, as well as recrudescent cases reported in 1960.

DHEW-PHS-CDC Statistics Section
Atlanta, Georgia, January 1962.

SOURCE: Epidemiologic Case Histories submitted to the Communicable Disease Center
by various State Health Departments.

TABLE 5

HUMAN BRUCELLOSIS CASES - 1960*
BY OCCUPATION AND PROBABLE SOURCE OF INFECTION

| OCCUPATION | PROBABLE SOURCE OF INFECTION | | | | | | | | | | | | Possible Recrudes- cence | |
|---------------------|------------------------------|--------|------------------------|---------------------|-------------------|--------------------|-------------|--------------------------------|----------------------|-------|---------------|-------|--------------------------------|--------------------|
| | Swine | Cattle | Cattle and Swine | Sheep or Goat | Packing- house | Rendering Plant | Raw Milk | Raw Milk From Family Cow | Vaccine Accidents | Other | Not Stated | Total | | Recrudes- cence |
| Packing house | 136 | 15 | 16 | | 54 | | | | | | | 221 | 11 | |
| Rendering plant | | | 1 | | | 2 | | | | | | 3 | | |
| Stockyard | 2 | | 1 | | | | | | | | | 3 | 1 | |
| Farm Workers | | | | | | | | | | | | | | |
| Livestock Farmers | 13 | 7 | 29 | | | | 1 | 1 | | | | 51 | 7 | 1 |
| Dairy Farmers | | 31 | | | | | | 1 | | | | 32 | 3 | |
| Farmers Unspecified | | | 1 | | | | 3 | | | | 15 | 19 | 3 | 1 |
| Wives and Children | | | | | | | | | | | | | | |
| Housewives | 2 | 8 | 3 | | | | 8 | 7 | | 1 | 28 | 57 | 12 | 3 |
| Students | | 3 | 3 | | | | 4 | 2 | 2 | | 5 | 19 | 1 | |
| Children (under 12) | | | | | | | 3 | | | | 1 | 4 | | |
| Professional | | | | | | | | | | | | | | |
| Veterinarians | | 2 | 5 | | | | | | 3 | 1 | 10 | 21 | 6 | |
| Other | | 2 | | | | | 3 | | 4 | | 4 | 13 | 2 | |
| Other Occupations | | | | | | | | | | | | | | |
| Meat Associated | 6 | 2 | 1 | | | | | | | | 3 | 12 | 1 | |
| Miscellaneous | 2 | 4 | | 1 | | | 7 | 2 | | | 24 | 40 | 6 | 2 |
| Not Stated | | 1 | 2 | | | | 2 | | 1 | | 54 | 60 | 35 | 1 |
| Total | 161 | 75 | 62 | 1 | 54 | 2 | 31 | 13 | 10 | 2 | 144 | 555 | 88 | 8 |

SOURCE: Epidemiologic Case Histories submitted to the Communicable Disease Center by various State Health Departments.

*Includes cases with onsets in 1960, as well as recrudescent cases reported in 1960.
DHEW-PHS-CDC-Statistics Section - Atlanta, Georgia, January 1962

TABLE 6

HUMAN BRUCELLOSIS CASES - 1961*
BY OCCUPATION AND RESIDENCE

| OCCUPATION | RESIDENCE | | | | | | | | | Total |
|---------------------|-----------|----|------|-------|----|------|---------|---|------|-------|
| | Urban | | | Rural | | | Unknown | | | |
| | M | F | Unk. | M | F | Unk. | M | F | Unk. | |
| Packing House | 139 | 9 | 1 | 12 | 1 | | 11 | 1 | | 174 |
| Rendering Plant | 3 | | | 1 | | | | | | 4 |
| Stockyard | 2 | | | 1 | | | | | | 3 |
| Farm Workers | | | | | | | | | | |
| Livestock Farmers | | | | 33 | | | | | | 33 |
| Dairy Farmers | | | | 33 | | | | | | 33 |
| Farmers Unspecified | | | | 14 | | | | | | 14 |
| Wives and Children | | | | | | | | | | |
| Housewives | | 10 | | | 22 | | | | | 32 |
| Students | 2 | 3 | | 5 | | | | | | 10 |
| Children (Under 12) | 4 | 2 | | 4 | 1 | | | | | 11 |
| Professional | | | | | | | | | | |
| Veterinarians | 13 | | | 3 | | | | | | 16 |
| Other | 2 | 2 | | 1 | 1 | | 1 | | | 7 |
| Other Occupations | | | | | | | | | | |
| Meat Associated | 11 | | | 3 | | | | | | 14 |
| Miscellaneous | 12 | 3 | | 8 | | | 2 | | | 25 |
| Not Stated | 8 | 9 | 2 | 10 | 4 | | 4 | | | 37 |
| Total | 196 | 38 | 3 | 128 | 29 | 0 | 18 | 1 | 0 | 413 |

*Includes cases with onsets in 1961 as well as as recrudescent cases reported in 1961.

DHEW-PHS-CDC-Statistics Section

Atlanta, Georgia, January 1962

SOURCE: Epidemiologic Case Histories submitted to the Communicable Disease Center
by various State Health Departments.

TABLE 7

HUMAN BRUCELLOSIS CASES - 1961*
BY OCCUPATION AND PROBABLE SOURCE OF INFECTION

| OCCUPATION | PROBABLE SOURCE OF INFECTION | | | | | | | | | | | Possible Recrudescence |
|---------------------|------------------------------|--------|------------------------|---------------------|-------------------|--------------------|-------------|--------------------------------|----------------------|------------------------|-------|---------------------------|
| | Swine | Cattle | Cattle and Swine | Sheep or Goat | Packing- house | Rendering Plant | Raw Milk | Raw Milk From Family Cow | Vaccine Accidents | Other Not Stated | Total | Recrudescence |
| Packing House | 98 | 14 | 20 | 1 | 40 | | | | | 1 | 174 | 4 |
| Rendering Plant | | | 2 | | | 2 | | | | | 4 | |
| Stockyard | 2 | | 1 | | | | | | | | 3 | |
| Farm Workers | | | | | | | | | | | | |
| Livestock Farmers | 16 | 2 | 14 | | | | | | 1 | | 33 | 2 |
| Dairy Farmers | | 30 | | | | | 2 | 1 | | | 33 | 7 |
| Farmers Unspecified | | 1 | | | | | 1 | | | | 12 | 4 |
| | | | | | | | | | | | 14 | 1 |
| Wives and Children | | | | | | | | | | | | |
| Housewives | 1 | 6 | 3 | | | | 7 | 4 | | 2 | 32 | 12 |
| Students | | 4 | | | | | 2 | 1 | | | 10 | 2 |
| Children (Under 12) | | 1 | 1 | | | | 3 | 4 | | | 11 | |
| Professional | | | | | | | | | | | | |
| Veterinarians | | 2 | 6 | | | | | | 7 | 1 | 16 | 4 |
| Other | 1 | 1 | | | 1 | | 1 | | | 3 | 7 | 2 |
| Other Occupations | | | | | | | | | | | | |
| Meat Associated | 2 | 6 | 4 | | | | | | 1 | 1 | 14 | 3 |
| Miscellaneous | 2 | 1 | 1 | | | | 6 | | | 2 | 25 | 8 |
| Not Stated | | 2 | | | | | 2 | | | 1 | 37 | 19 |
| Total | 122 | 70 | 52 | 1 | 41 | 2 | 24 | 10 | 9 | 7 | 413 | 67 |
| | | | | | | | | | | | | 1 |

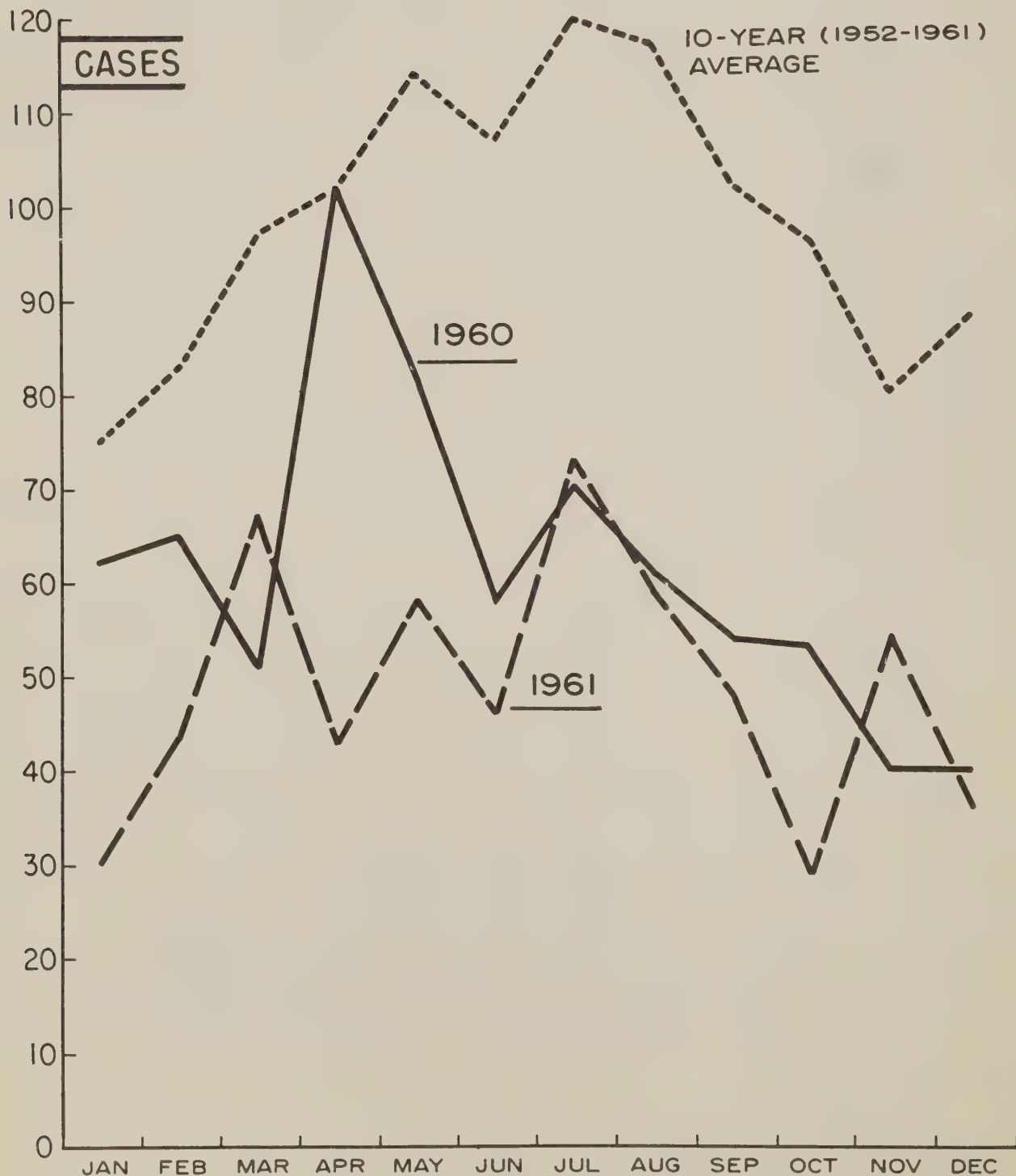
SOURCE: Epidemiologic Case Histories submitted to the Communicable Disease Center by various State Health Departments.

*Includes cases with onsets in 1961, as well as recrudescence cases reported in 1961.

DHEW-PHS-CDC-Statistics Section - Atlanta, Georgia, January 1962.

FIGURE 1

SEASONAL TRENDS OF REPORTED HUMAN BRUCELLOSIS



SOURCE: Annual Supplements, NOVS-CDC, 1952-1960.

* 1961 Data CDC Weekly Morbidity & Mortality Reports.

Table 8
BRUCELLOSIS - 1952-1961

| Year | January | February | March | April | May | June | July | August | September | October | November | December |
|-------|---------|----------|-------|-------|-------|-------|-------|--------|-----------|---------|----------|----------|
| 1952 | 146 | 157 | 177 | 197 | 186 | 209 | 218 | 230 | 185 | 188 | 149 | 156 |
| 1953 | 97 | 113 | 130 | 143 | 155 | 165 | 197 | 200 | 160 | 170 | 115 | 165 |
| 1954 | 104 | 128 | 128 | 124 | 169 | 157 | 179 | 163 | 182 | 128 | 114 | 138 |
| 1955 | 86 | 80 | 117 | 102 | 125 | 108 | 130 | 132 | 111 | 104 | 85 | 80 |
| 1956 | 71 | 87 | 84 | 82 | 112 | 106 | 81 | 110 | 101 | 109 | 90 | 98 |
| 1957 | 54 | 65 | 96 | 94 | 98 | 81 | 93 | 86 | 59 | 71 | 60 | 54 |
| 1958 | 46 | 52 | 53 | 62 | 86 | 66 | 91 | 70 | 69 | 59 | 43 | 60 |
| 1959 | 57 | 48 | 65 | 66 | 65 | 76 | 71 | 60 | 56 | 50 | 51 | 54 |
| 1960 | 62 | 65 | 51 | 102 | 82 | 58 | 70 | 61 | 54 | 53 | 40 | 40 |
| 1961* | 30 | 37 | 67 | 43 | 58 | 46 | 73 | 59 | 48 | 29 | 55 | 36 |
| Total | 753 | 832 | 968 | 1,015 | 1,136 | 1,072 | 1,204 | 1,171 | 1,025 | 961 | 802 | 881 |
| | | | | | | | | | | | | 11,820 |

*Preliminary figures.

SOURCE: *1961 Data CDC Weekly Morbidity & Mortality Reports
Annual Supplements, NOVS-CDC, 1952-1960.

APPENDIX ON BRUCELLOSIS CONTROL PROGRAM

MODIFIED CERTIFIED BRUCELLOSIS-STATES

| | | Annual Average Case Rate per 100,000 Pop. ** | |
|--|--------------------|---|------------|
| | | 1948 -1950 | 1957 -1959 |
| North Carolina | July 1, 1942 | .5 | -.2 |
| * New Hampshire | August 1, 1949 | .9 | -.0 |
| Maine | July 1, 1950 | 1.3 | -.1 |
| Washington | June 1, 1956 | 1.5 | -.1 |
| Wisconsin | June 6, 1956 | 7.1 | .5 |
| Delaware | January 10, 1957 | .3 | .1 |
| Minnesota | May 30, 1957 | 10.7 | 1.1 |
| Connecticut | July 26, 1957 | 3.6 | .1 |
| Vermont | August 12, 1957 | 4.1 | .8 |
| Pennsylvania | March 13, 1958 | .9 | .1 |
| Rhode Island | February 21, 1958 | .7 | .04 |
| Utah | June 1, 1958 | 8.2 | .7 |
| New Jersey | June 1958 | .8 | .1 |
| New Mexico | June 1958 | .8 | .2 |
| Michigan | June 30, 1958 | 2.7 | .2 |
| Massachusetts | March 1959 | .7 | .1 |
| Nevada | April 15, 1959 | 1.9 | .2 |
| Maryland | April 22, 1959 | 2.1 | .04 |
| Arizona | June 30, 1959 | 2.4 | .4 |
| Oregon | July 2, 1959 | 3. | .2 |
| Tennessee | September 28, 1959 | 1.6 | .6 |
| West Virginia | October 9, 1959 | .4 | .03 |
| New York | November 5, 1959 | 1.2 | .1 |
| Georgia | December 31, 1959 | 3.5 | .7 |
| Idaho | July 8, 1960 | 4.9 | .2 |
| Indiana | September 9, 1960 | 1.3 | .2 |
| Also the Commonwealth of Puerto Rico certified | | December 5, 1957 | |

* Brucella Free-State

** Source: Annual Supplement, Notifiable Diseases. NOVS. 1948-1959
Populations, Mid-year Estimates, Bureau of the Census

Information obtained from: Animal Disease Eradication Division, A.R.S.,
U.S.D.A., Atlanta, Georgia

DHEW-PHS-CDC

Atlanta, Ga. Jan. 1961

Swine Brucellosis 5 years 1956-1960

1959

Persons Exposed to Swine Brucellosis

| | Tested | | | Infected | | | Farm | | | People on | | | Persons Exposed to | | |
|----------------|---------|--------|--------|----------|-------|-------|------------|-----------|-----------|-----------|-----------|---------|--------------------|----------|--|
| | Swine | Herds | % | Swine | Herds | % | Family | Factor | Swine | Farms | Raising | Swine | Infected | Premises | |
| Alabama | 18,592 | 2,103 | 695 | 3.74 | 381 | 18.12 | 1,222,071 | 75,614 | 45,705 | 13,701 | 345,556 | 62,614 | | | |
| Alaska | 1 | 1 | 0 | 0 | 0 | 0 | | | | | | | | | |
| Arizona | 1,271 | 145 | 171 | 13.45 | 28 | 19.31 | 28,737 | 1,019 | 3,865 | 196 | 7,704 | 1,482 | | | |
| Arkansas | 1,428 | 207 | 64 | 4.48 | 15 | 7.25 | 499,298 | 44,281 | 22,368 | 3,210 | 195,279 | 14,156 | | | |
| California | 0 | 0 | 0 | 0 | 0 | 0 | 279,455 | 9,200 | 5,728 | 565 | 41,400 | 2,543 | | | |
| Colorado | 242 | 76 | 5 | 2.07 | 3 | 3.95 | 243,248 | 10,310 | 5,035 | 407 | 45,159 | 1,783 | | | |
| Connecticut | 0 | 0 | 0 | 0 | 0 | 0 | 20,828 | 645 | 427 | 39 | 2,851 | 172 | | | |
| Delaware | 82 | 10 | 0 | 0 | 0 | 0 | 38,085 | 2,182 | 780 | 134 | 10,190 | 626 | | | |
| Florida | 18,739 | 2,842 | 754 | 4.02 | 319 | 11.22 | 422,959 | 13,886 | 17,003 | 1,558 | 57,905 | 6,497 | | | |
| Georgia | 49,728 | 3,533 | 3,147 | 6.33 | 653 | 18.48 | 1,833,135 | 73,336 | 116,037 | 13,552 | 357,880 | 66,134 | | | |
| Hawaii | 1,247 | 103 | 201 | 16.12 | 52 | 50.48 | | | | | | | | | |
| Idaho | 4,422 | 674 | 108 | 2.44 | 55 | 8.16 | 173,739 | 9,402 | 4,239 | 767 | 39,112 | 3,191 | | | |
| Illinois | 193,543 | 22,021 | 5,542 | 2.86 | 2,236 | 10.15 | 8,284,669 | 94,559 | 236,941 | 9,598 | 374,454 | 38,008 | | | |
| Indiana | 141,181 | 19,258 | 766 | 0.54 | 284 | 1.47 | 5,356,518 | 74,374 | 28,925 | 1,093 | 298,984 | 4,394 | | | |
| Iowa | 72,860 | 8,671 | 945 | 1.30 | 339 | 3.91 | 14,789,165 | 134,503 | 192,259 | 5,259 | 523,217 | 20,458 | | | |
| Kansas | 3,929 | 620 | 131 | 3.33 | 70 | 11.29 | 1,341,300 | 37,615 | 44,665 | 4,246 | 127,515 | 14,394 | | | |
| Kentucky | 6,319 | 655 | 278 | 4.40 | 86 | 13.13 | 1,632,011 | 87,590 | 72,688 | 11,500 | 391,527 | 51,405 | | | |
| Louisiana | 9,175 | 1,296 | 84 | 0.91 | 30 | 2.31 | 332,688 | 35,708 | 3,209 | 824 | 164,257 | 3,790 | | | |
| Maine | 9 | 2 | 0 | 0 | 0 | 0 | 24,646 | 4,134 | 505 | 254 | 18,024 | 1,107 | | | |
| Maryland | 6,425 | 924 | 8 | 0.12 | 6 | 0.65 | 216,595 | 11,468 | 260 | 74 | 58,946 | 380 | | | |
| Massachusetts | 359 | 21 | 3 | 0.84 | 1 | 4.76 | 107,943 | 1,235 | 906 | 58 | 5,125 | 241 | | | |
| Michigan | 5,792 | 1,084 | 16 | 0.28 | 8 | 0.74 | 988,455 | 34,257 | 2,711 | 253 | 154,842 | 1,144 | | | |
| Minnesota | 5,986 | 660 | 15 | 0.25 | 10 | 1.52 | 4,706,457 | 84,249 | 11,766 | 1,280 | 350,476 | 5,325 | | | |
| Mississippi | 10,108 | 511 | 124 | 1.23 | 62 | 13.50 | 811,193 | 85,843 | 9,977 | 11,588 | 375,922 | 50,755 | | | |
| Missouri | 52,269 | 6,739 | 528 | 1.01 | 313 | 4.64 | 4,776,937 | 100,432 | 48,247 | 4,660 | 379,633 | 17,615 | | | |
| Montana | 220 | 40 | 5 | 2.07 | 1 | 2.50 | 188,777 | 7,962 | 4,285 | 199 | 30,893 | 772 | | | |
| Nebraska | 13,904 | 2,177 | 40 | 0.29 | 30 | 1.38 | 3,245,237 | 52,838 | 9,411 | 729 | 193,387 | 2,668 | | | |
| Nevada | 0 | 0 | 0 | 0 | 0 | 0 | 10,360 | 587 | 212 | 36 | 2,589 | 159 | | | |
| New Hampshire | 7 | 1 | 0 | 0 | 0 | 0 | 13,542 | 1,310 | 277 | 80 | 5,175 | 316 | | | |
| New Jersey | 640 | 61 | 3 | 0.47 | 1 | 1.64 | 179,399 | 1,892 | 843 | 31 | 7,984 | 131 | | | |
| New Mexico | 177 | 22 | 0 | 0 | 0 | 0 | 61,578 | 4,760 | 1,262 | 292 | 26,989 | 1,656 | | | |
| New York | 0 | 0 | 0 | 0 | 0 | 0 | 165,927 | 15,491 | 3,401 | 952 | 73,272 | 4,303 | | | |
| North Carolina | 19,489 | 1,780 | 306 | 1.57 | 103 | 5.79 | 1,660,105 | 131,865 | 26,063 | 7,635 | 631,633 | 36,572 | | | |
| North Dakota | 705 | 114 | 6 | 0.85 | 6 | 5.26 | 508,355 | 23,214 | 4,321 | 1,221 | 90,535 | 4,762 | | | |
| Ohio | 29,751 | 3,333 | 122 | 0.41 | 84 | 2.52 | 3,059,900 | 64,125 | 12,545 | 1,616 | 279,585 | 7,046 | | | |
| Oklahoma | 4,723 | 1,201 | 62 | 1.31 | 25 | 2.08 | 524,514 | 33,800 | 6,871 | 703 | 131,820 | 2,742 | | | |
| Oregon | 156 | 30 | 0 | 0 | 0 | 0 | 197,593 | 9,872 | 4,050 | 607 | 39,205 | 2,349 | | | |
| Pennsylvania | 7,032 | 1,416 | 1 | 0.01 | 1 | 0.07 | 620,969 | 40,892 | 62 | 28 | 174,200 | 119 | | | |
| Rhode Island | 0 | 0 | 0 | 0 | 0 | 0 | 9,474 | 145 | 194 | 8 | 673 | 37 | | | |
| South Carolina | 5,073 | 694 | 118 | 2.33 | 44 | 6.34 | 672,803 | 53,776 | 15,676 | 3,409 | 271,569 | 17,216 | | | |
| South Dakota | 21,387 | 2,728 | 91 | 0.43 | 64 | 2.35 | 2,042,482 | 33,021 | 8,782 | 776 | 126,140 | 2,964 | | | |
| Tennessee | 6,540 | 656 | 47 | 0.72 | 21 | 3.20 | 1,609,569 | 99,400 | 11,588 | 3,180 | 438,354 | 14,024 | | | |
| Texas | 1,326 | 33 | 2 | 0.15 | 2 | 6.06 | 1,160,487 | 75,640 | 1,740 | 4,583 | 297,265 | 18,011 | | | |
| Utah | 927 | 150 | 14 | 1.51 | 5 | 33.33 | 74,287 | 5,877 | 1,121 | 1,958 | 21,980 | 7,323 | | | |
| Vermont | 0 | 0 | 0 | 0 | 0 | 0 | 13,519 | 2,373 | 277 | 145 | 10,204 | 624 | | | |
| Virginia | 5,335 | 528 | 491 | 9.20 | 103 | 19.51 | 785,194 | 64,462 | 72,237 | 12,576 | 313,930 | 61,245 | | | |
| Washington | 797 | 194 | 4 | 0.50 | 4 | 2.06 | 159,184 | 9,376 | 795 | 193 | 37,598 | 774 | | | |
| West Virginia | 42 | 9 | 0 | 0 | 0 | 0 | 148,238 | 23,736 | 3,038 | 1,459 | 120,342 | 7,397 | | | |
| Wisconsin | 5,902 | 1,127 | 0 | 0 | 0 | 0 | 2,460,534 | 62,220 | 50,440 | 3,826 | 270,657 | 16,643 | | | |
| Wyoming | 51 | 17 | 0 | 0 | 0 | 0 | 44,626 | 2,463 | 914 | 151 | 11,133 | 683 | | | |
| Puerto Rico | 217 | 121 | 0 | 0 | 0 | 0 | | | | | | | | | |
| Virgin Islands | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | |
| Total | 728,108 | 88,588 | 14,897 | 2.05% | 5,452 | 6.15% | 67,766,785 | 1,846,939 | 1,114,651 | 131,209 | 7,932,139 | 578,950 | | | |

Brucellosis Program ARS, USDA

AN EXPANDED INFORMATIONAL AND EDUCATIONAL PROGRAM
Subcommittee on Information and Education
of the
National Brucellosis Committee
by
Herman Aaberg, Chairman

Members of the subcommittee on information and education are pleased to report several significant developments supporting the expanded information and education program approved two years ago by the National Brucellosis Committee of Livestock Conservation, Inc. Last year's energetic program has not only been sustained but elaborated upon and, we hope, refined.

This year, special informational and educational efforts were made to emphasize the necessity for eradicating swine brucellosis--the largest reservoir of infection outside of cattle.

The just completed swine brucellosis exhibit, on display here for the first time is one of many examples of this intensified campaign. You'll note that the major emphasis is placed on the importance of establishing and maintaining a Validated Brucellosis-Free Herd. A herd is validated brucellosis-free after all animals 6 months of age or older pass two consecutive negative blood tests, 30-90 days apart. Herds are validated for 12 months and can be revalidated brucellosis-free if the entire herd is blood tested annually and found to be free from the disease. The human health aspect is mentioned in the exhibit--stressing that swine, rather than cattle, are now the major reservoir of human brucellosis.

Since the symptoms of swine brucellosis may go unnoticed by the hog producer, the human health aspects may be one of the strongest motivational factors in this campaign. However, every safeguard is being taken not to adversely affect the pork image or to unduly alarm packing plant personnel. This precaution is reflected in the distribution

of two recently prepared publications. One concerns the "Swine Brucellosis--how you can eradicate it"; the other "Swine Brucellosis and human health." The instructions for distribution specifically state that they be distributed in pairs--to keep the informational emphasis in proper balance.

More than 25,000 of these publications will be distributed primarily by the swine breed associations in their regular mailings to their members. These Associations are further cooperating by distributing 24,000 copies each of 6 different envelope stuffers during the coming year emphasizing the important facets of the swine brucellosis eradication program. This sustained program will reach most of the nation's registered swine producers. From the standpoint of launching the swine brucellosis program on a herd by herd basis, registered swine producers stand to gain most by "Validating" their herds Brucellosis-Free. Our informational program should continue to emphasize these benefits.

In addition to the distribution through the breed associations, State and Federal veterinarians and the Extension Service are helping to distribute approximately 385,000 copies each of these stuffers. They will be put out at 2-month intervals--to keep the problem constantly before the eyes of hog producers. Packing plants and auction markets are among the outlets for these stuffers.

An educational movie is being planned dramatizing the major aspects of the swine brucellosis eradication program.

Registered swine breeders should be encouraged to inform potential buyers through advertising and other means that they have established and are maintaining superior herd health through the Validated Brucellosis-Free program.

Metal signs are being prepared featuring the words "Validated Brucellosis-Free Herd," a stylized hog, and the year the herd was validated. These will be issued to cooperators qualifying their herds under the swine brucellosis eradication program for display at the farmstead.

The pilot project in Dooly County, Georgia, involving down-the-road, farm-to-farm blood testing of hogs for brucellosis received national press, radio and television coverage. Experience gained here is being utilized to formulate an area approach to swine brucellosis eradication. The few remaining infected herds in Dooly County are being retested and the infected animals removed or the herds liquidated. The enthusiasm in this county for the eradication of brucellosis indicates that Dooly County will be the first area in the United States to become Validated Brucellosis-Free. Signs will be erected at all primary roads leading into this county calling attention to the Nation's first brucellosis free area and cautioning that livestock movements are restricted.

Should Dooly County become the first area in the United States to eradicate brucellosis from swine, this development could be used to launch a national informational and educational campaign to provide guide lines and encouragement to other interested areas.

Market cattle testing continued to be the most newsworthy approach or method used to eradicate bovine brucellosis. Publicity is being put out through all mediums of communication.

Two envelope stuffers have been utilized in bringing the advantages of this procedure to the attention of cattlemen. The acceptance of market cattle testing is exemplified by the fact that orders were received for nearly 200,000 copies of the first stuffer and for over

700,000 copies of the second. Future envelope stuffers on the bovine brucellosis eradication program will emphasize the value of continuing calfhooD vaccination and urge farmers and ranchers to take part also in the market cattle testing program.

These stuffers, designed as "hitch-hiker" pieces, are included in the mail ordinarily sent out to livestock producers. Some of the outlets using these stuffers are: State veterinarian's offices, Animal Disease Eradication offices, County Agricultural Extension agents, Vocational Agriculture instructors, State farm organizations, auction markets, Government agencies, such as Agricultural Stabilization and Conservation, Soil Conservation Service, State extension livestock specialists and producer and breed organizations.

Market cattle testing continued to gain wide acceptance with 47 States now using this program in some way to recertify areas. The recent expansion of this program making it applicable for the initial certification of an area provided one of the major newsbreaks in the bovine brucellosis eradication program.

All mediums of communication were used to bring the significance of this development to the attention of the livestock industry. A radio tape of the announcement was made and distributed to 184 radio stations; a press release of the announcement was issued through USDA's office of information; and a special magazine treatment of the announcement was sent to 186 farm magazines throughout the country. Television coverage--in the form of a 4½-minute program is planned.

Within the bovine brucellosis eradication effort, educational and informational efforts should emphasize that market cattle testing is an alternate method and usually supplements other time proven

methods such as the brucellosis milk ring test. However, the expansion of this program in two short years to a level of more than 2½ million cattle tested annually indicates a need to concentrate considerable attention in this direction.

The advantages of the market cattle testing program are numerous. To earn the wholehearted support of the many facets of the livestock industry in tagging, taking blood samples, making blood tests, tracing infected animals to herd of origin, they must be made aware of these benefits.

Coverage of brucellosis eradication activities by specific communications media through USDA facilities included: Six transcriptions for the Agri-tape program sent to 184 radio stations. Four tapes for the Agriculture--USA program made available to 103 radio stations. Television slides with 10 and 20 second announcements recognizing the Validated Brucellosis-Free program forwarded to 341 television outlets. In all, the brucellosis program was televised on four occasions for distribution to 235 television stations. Eight news releases were made to the press with two releases specially prepared for the Nation's farm magazines.

To further strengthen the informational and educational aspect of the brucellosis program, Animal Disease Eradication Division personnel and other interested regulatory personnel should be given guidance on how to most effectively utilize the communication media. This guidance in part could be a press kit containing: Developments of interest to the public, how to approach the press, sample news releases with basic instructions for preparing them, and background material on livestock

disease eradication programs. Informational specialists should continue to work directly with State and Federal disease control officials at the field level where specific public relation problems may be given full consideration.

One of the major challenges in carrying an eradication program to its full completion is the development of a proper perspective within the livestock industry toward a relatively low level of infection. A full measure of understanding is required if the decision is to complete the task as opposed to controlling and living with the disease.

For this reason, preliminary measures have been taken to interest the Nation's 10,740 vocational agricultural high school instructors in our brucellosis eradication program as a part of their teaching program. This select audience consists of 464,000 students and 322,500 young farmers attending adult evening classes.

Every effort should be made to emphasize that brucellosis is being eradicated and that a target date of 1975 has been set. This should be repeated in news releases whenever possible. If the target date is to be met, the eradication concept must be developed within the livestock industry.

These are the major activities embraced by our information and education efforts this past year. The members of the Subcommittee feel that progress has been made in informing all segments of the public of the problems, progress and goals of the brucellosis program.

Subcommittee on Information and Education

| | |
|----------------------------|----------------|
| Herman C. Aaberg, Chairman | R. E. Burleson |
| C. W. Burch | H. S. Nicol |
| George E. Parsons | Nelson J. Post |
| Charles Scruggs | Paul Zillman |

THE COOPERATIVE STATE-FEDERAL BRUCELLOSIS ERADICATION PROGRAM

A Progress Report
by
C. K. Mingle

1961 was a year of transition in the Cooperative State-Federal Brucellosis Eradication Program. Mass-testing of cattle on a farm to farm and ranch to ranch basis, designed to wipe out quickly the greater part of the existing brucellosis, was complete in the certified areas, now more than 73 percent of the counties in the United States, and almost complete in another 9 percent. Thus, more than four-fifths of the Nation found it expedient to move on toward brucellosis eradication by adopting as many advanced phases of the total program as funds and work loads would permit. Expansion of the program was particularly evident in swine brucellosis eradication, market cattle testing, increased frequency of milk ring tests covering a greater percentage of the dairy herds, adoption of the "problem herd" program by a number of States, widespread activity of veterinary brucellosis eradication specialists, and a more meticulous approach to all other procedures.

1961 was unique in another respect, for this was the first year since 1955 that at least one State did not achieve statewide Modified Certified Brucellosis Area status. This was due to the cut-back in available funds for fiscal year 1960. The counties not started that year were directly reflected in the States not certified in 1961. However, this is past history, and 1962 promises to be one of the finest years we have had in the number of States achieving Modified Certified Brucellosis Area status.

Swine Brucellosis Eradication Program

Although we must not minimize the importance of continued efforts to eradicate brucellosis in cattle, brucellosis eradication in swine should be highlighted at this point because of its great importance in the total program. Rapid strides were taken during 1961 in establishing a strong, active swine brucellosis eradication program. Prior to this, swine brucellosis eradication was conducted almost entirely through the voluntary participation of the swine producers. Official recognition of brucellosis-free herds of swine varied greatly from State to State, and relatively few producers took an active interest. However, all this has been changed, and the Validated Brucellosis-Free Herd will soon be well known and recognized everywhere throughout the United States. One of the most important reasons for stressing swine brucellosis eradication at this time is the fact that since 1959 the majority of cases of human brucellosis reported to the U. S. Public Health Service are believed to be due to direct or indirect contact with diseased swine, rather than cattle.

A number of important organizations have recently voiced the need for eradicating swine brucellosis. The National Association of State Departments of Agriculture adopted the following resolution in October 1961:

"WHEREAS, Brucellosis is a serious disease of swine causing approximately \$10 million in losses to the swine industry each year, and

"WHEREAS, Brucellosis in swine is now the most serious remaining reservoir of human brucellosis (Undulant fever) in the United States, and

"WHEREAS, Brucellosis in cattle has been reduced to a remarkable extent during the past seven years through the cooperative efforts of State and Federal governments, and

"WHEREAS, Brucellosis cannot be completely eradicated as long as it exists unchecked in swine and other domestic animals;

"NOW, THEREFORE, BE IT RESOLVED, That the National Association of State Departments of Agriculture in annual convention assembled as Hershey, Pennsylvania, October 1-5, 1961, recommends:

"That the individual States and the United States Department of Agriculture cooperatively conduct an intensified swine brucellosis eradication program, based upon procedures recommended by the United States Livestock Sanitary Association;

"That swine herds which are free of brucellosis be designated 'Validated Brucellosis-Free Herds.'

"BE IT FURTHER RESOLVED, That this program shall not affect the present bovine brucellosis eradication program."

The Indiana Swine Breeders' Association, Inc., in January 1962 adopted the following resolution:

"WHEREAS, excellent progress is being made in eradicating bovine brucellosis throughout the United States; and

"WHEREAS, the brucellosis problem will not be solved until the disease is eradicated from all susceptible livestock species; and

"WHEREAS, brucellosis in swine is recognized as having serious economic and public health aspects; and

"WHEREAS, the eradication of this disease in swine will require the full support of all interested groups;

"THEREFORE, BE IT RESOLVED by the Indiana Swine Breeders' Association, Inc., in Indianapolis, Indiana, on January 8, 1962, That:

"1. All States initiate an expanded swine brucellosis eradication program based on uniform recommendations for declaring individual herds free of the disease as adopted by the United States Livestock Sanitary Association and approved by the USDA.

"2. Herds qualifying as brucellosis-free herds be designated 'Validated Brucellosis-Free Herds.'

- "3. All States permit interstate and intrastate movements from 'Validated Brucellosis-Free Herds' without further brucellosis testing.
- "4. The United States Livestock Sanitary Association, in cooperation with industry leaders and the USDA, formulate effective and practical recommendations for establishing and maintaining swine brucellosis-free areas."

On April 4, 1961, the Chief Livestock Sanitary Officials of the Northeastern, North-central and Southern States, gathered in convention at Roanoke, Virginia, adopted the following resolution:

"WHEREAS, great progress is being made in the control and eradication of bovine brucellosis in the United States; and

"WHEREAS, this important disease cannot be eradicated as long as it exists in other species of livestock, particularly in swine; and

"WHEREAS, brucellosis in swine has been demonstrated to be an important economic and public health hazard;

"NOW, THEREFORE, BE IT RESOLVED THAT:

- "1. The U. S. Department of Agriculture, through its Animal Disease Eradication Division, be requested to formulate, in cooperation with the U. S. Livestock Sanitary Association, a National Cooperative Swine Brucellosis Eradication Program.
- "2. The several States are urged to support this organized effort toward complete eradication of brucellosis in all susceptible species of livestock."

The National Association of Swine Records, at Champaign, Illinois, in July 1961 adopted the following resolution:

"WHEREAS, swine brucellosis is a serious problem to swine producers, both from the economic losses it causes and from the standpoint of the hazards to human health, and

"WHEREAS, concerted action at the National, State, and local levels is necessary to eradicate the disease;

"NOW THEREFORE BE IT RESOLVED by the National Association of Swine Records, meeting in Champaign, Illinois, on July 12, 1961,

- "1. That an effective swine brucellosis eradication program be initiated, such a program to be based upon procedures recommended by the U. S. Livestock Sanitary Association, and approved by the USDA;
- "2. That all States adopt these same procedures for the purpose of establishing brucellosis-free swine herds;
- "3. That those swine herds which qualify under these procedures be designated as 'Validated Brucellosis-Free Herds'; and
- "4. That all States take action to allow individual animals from such Validated Brucellosis-Free Herds to move interstate without further test.

"BE IT FURTHER RESOLVED,

"That the U. S. Department of Agriculture, through its Animal Disease Eradication Division, provide the membership of the associations comprising the National Association of Swine Records with information on swine brucellosis, its prevention and eradication."

It would be well to repeat the statement issued by this Committee at the special meeting held at Chicago in June 1961, which is as follows:

"It was the consensus of the group that they:

"Approve and recommend the use of the term 'validated' in connection with swine herds declared brucellosis-free under the uniform methods and rules adopted by the USLSA; and that swine from these brucellosis-free herds be accepted by all States without further test.

"Further, endorsement was given to the projected USDA swine brucellosis information program."

The American Farm Bureau Federation, meeting at Chicago in December 1961, reaffirmed its strong support for eradication of brucellosis in all species of livestock.

At first the cooperative swine brucellosis eradication program will be based on establishing brucellosis-free herds of swine. These will be designated "Validated Brucellosis-Free Herds" to distinguish them from unrelated programs which use the word--certified-- in designating certified litters, certified meat sires, etc. Swine brucellosis

eradication procedures adopted by the U. S. Livestock Sanitary Association and approved by the Animal Disease Eradication Division, Agricultural Research Service, USDA, will be used as a guide. Validated Brucellosis-Free Herds will serve as a source of brucellosis-free breeding boars and replacement stock.

In addition to Validated Brucellosis-Free Herds, similarly designated areas will be established. Already Dooly County, Georgia, has completed tests of all breeding herds on an area basis. Only 17 infected animals in 5 herds were found. The diseased swine have been eliminated and retests of the infected herds are under way. It is expected that this County will soon be the first Validated Brucellosis-Free Area in the United States.

All States are urged to intensify their efforts to eradicate swine brucellosis. To foster the program, it is recommended that all States recognize Validated Brucellosis-Free Herds and accept animals from these herds for import without further test. Universal recognition of Validated Brucellosis-Free Herds will encourage the eventual eradication of brucellosis from all swine.

Cooperation of Organizations and Individuals in the Brucellosis Eradication Program

Many organizations and individuals have taken a vital interest in brucellosis eradication throughout the years, and without their support the program could not succeed. For instance, the Extension Service has done an outstanding job in furthering education on brucellosis and its eradication, and often takes a leading role in certain physical aspects of the program. To name all of these fine

organizations would be an endless task. Many will be mentioned in the narrative reports of progress in the individual States. Many others, although not mentioned, have contributed equally as much and must be given their share of credit and thanks.

One group which has done much to forward brucellosis eradication through its active participation is the practicing veterinarians. Thousands have contributed their time and energy in conducting the necessary tests and vaccinations of livestock and providing vital information and professional advice to farmers and ranchers. There is still a great need for their assistance, particularly in those areas which are lagging. Practicing veterinarians everywhere are requested to renew their interest and take part more actively whenever and wherever possible.

Economic Losses to the Cattle Industry, Past and Present

When brucellosis eradication began, more than 10 percent of all cattle blood tested had the disease. Losses to the livestock industry in reduced milk production, aborted and dead calves, and cost of replacing unproductive cows were enormous. In 1947, losses to the cattle industry were conservatively estimated to be \$100,000,000. At that time the incidence of the disease had been reduced to 4.5 percent. No doubt the losses were several hundred million dollars a year in the early 1930s.

Annual losses to the cattlemen have been continually reduced through the years. For instance, in 1954, with a disease incidence of 2.4 percent, milk, cow and calf losses were estimated at \$58,300,000. These were estimated again in 1961, and with a disease incidence of

1.04 percent, the losses had dropped to \$23,000,000. In terms of savings to the livestock industry, the brucellosis eradication program is realizing an annual profit of several hundred percent over cost. This does not include indirect benefits such as the reduced number of cases of human brucellosis. Certainly, in terms of an improved economy every dollar spent in brucellosis eradication is fully justified.

National Goal for Brucellosis Eradication

All factors in the brucellosis eradication program have been taken into account and carefully considered in relation to establishing a goal for brucellosis eradication in the United States. It can now be announced that a realistic goal for total eradication in this Nation is 1975. This will be possible only if each State will do its share by achieving Certified Brucellosis-Free Area status by 1972 or before. With a buffer of 3 additional years in which to concentrate all efforts toward eradicating brucellosis in other species of livestock, there is no reason now foreseen which would prevent eradication by 1975. With a National goal to work toward, it is hoped that all States will be able to adjust their programs to achieve it.

The Brucellosis Program Following Eradication

Many are wondering what is in store for the Nation in terms of a continuing brucellosis program following eradication. Plans for this period are well advanced, and all segments of the livestock industry must be told of these plans at every opportunity. Certainly, a program with a definite, clearly defined termination known to all

will foster the enthusiasm necessary to carry it through successfully to the final goal.

When it is apparent that brucellosis has been eradicated, various phases of the brucellosis eradication program will be curtailed, while others will decrease. This will occur when no infected animals have been found for a reasonable period of time. This point is expected in 1975, at which time testing of animals at farms and ranches will have ended. Calfhood vaccination will be gradually discontinued as the risk of exposure is reduced to the vanishing point. It is anticipated that calfhood vaccination, at the option of the livestock owners, will continue for a time following eradication in each area until the livestock industry has assured itself that brucellosis has, in fact, been eradicated. At that point, all calfhood vaccination will be discontinued, thereby saving many millions of dollars each year.

The two major surveillance programs, milk ring testing and market cattle testing, will continue unabated for a limited time to assure that brucellosis will be detected immediately should infection break out at any point, or should new infection be introduced through international imports. As the period without infection grows longer and longer, these surveillance programs will be cut to a minimum. Total coverage is expected to give way to intermittent screening of livestock populations, based upon statistically valid samples, to assure that all livestock continue to be free of infection.

When everyone is satisfied that brucellosis has been eradicated, once and for all, the only continuous activity will be the comprehensive screening of animals imported from nations where the disease is known to exist to preclude introduction of the disease.

If the livestock industry continues its solid support of the program in all areas, and financial support remains at an adequate level, there is no question but that brucellosis will be eradicated in all species of susceptible livestock in less than fifteen years.

Certified Brucellosis-Free Areas

There were 57 counties added to the list of Certified Brucellosis-Free Areas during 1961, bringing the total to 100. These are located in 11 different States. Although New Hampshire is still the only State to hold this title, Maine expects to qualify its last county any day. Barring unforeseen circumstances, Maine will be the second State to be declared brucellosis-free.

A record of herds found infected in Certified Brucellosis-Free Areas is maintained in Washington, D. C. According to the most recent tabulation, only one such infected herd is being found each three years, on the average, in each Certified Brucellosis-Free County. Although there is reason to be very pleased with this record, there is also reason to voice a word of caution. Surveillance programs must be well developed in these areas so that infection, should it gain entrance, will be promptly detected and wiped out before it can spread to other susceptible herds. Also each area should be very carefully qualified; there can be no compromise with total eradication, particularly in Certified Brucellosis-Free Areas.

Modified Certified Brucellosis Areas

One State lost its Modified Certified Brucellosis Area status during 1961 when a few herds in one county were not submitted for the necessary tests. Litigation late in the year was decided by

the Court in favor of the State. As this report went to press, notice was received that the necessary tests had been completed and that the county qualified for reinstatement. The certification status of the State has now been restored.

As far as counties are concerned, 252 earned this designation, and 13 lost it, for a net increase of 239. This compares with a net increase of 250 in 1960. With only 551 counties yet to join the program at the end of 1961, there will be fewer areas completing this phase of the brucellosis eradication program each year.

It is entirely possible that all areas can achieve Modified Certified Brucellosis Area status by the end of fiscal year 1965. Therefore, a goal of June 30, 1965, has been established for Modified Certified Brucellosis Area status for the entire Nation. There are a few States in which the present program must be accelerated in order to meet this goal. In the several intervening years, however, adjustments should be possible, even in the most difficult situations.

Recertification of Modified Certified Brucellosis Areas

With counties coming due for recertification as Modified Certified Brucellosis Areas at the rate of more than 700 per year, it can be seen that recertification is now one of the major activities of the brucellosis eradication program. The minimum requirements of the Uniform Methods and Rules for recertification of Modified Certified Brucellosis Areas are designed to maintain this status and move slowly toward eradication. All activities should be increased in scope when each State achieves this status. Following initial

certification, each State must devote a period of time to consolidating the gains which have been made. Herds under quarantine must be retested and freed of infection. Surveillance programs, such as market cattle and milk ring testing, must be improved and increased in frequency so that as many herds as possible will be continually screened for evidence of new infection. As maximum coverage is attained, the State should be well along with the Certified Brucellosis-Free Area phase of the eradication program. To be satisfied only with maintaining Modified Certified Brucellosis Area status is to jeopardize the substantial investment already made in brucellosis eradication.

Progress During 1961

All activities of the brucellosis eradication program increased in volume during the past year, and the incidence of the disease continued to fall. The number of lots of cattle blood tested increased almost 36 percent through expanded activities of the market cattle testing program. Attesting to the value of this procedure was an increase of 7,197 in the number of lots in which diseased animals were found. However, the percent lots with reactors dropped to a new low of 3.9 percent.

With half of the States in the Nation certified as of June 30, 1961, it is interesting to compare them with the noncertified States in regard to the number of farms or ranches on which brucellosis reactors were found in fiscal years 1960 and 1961. Of the 31,910 premises with infection in 1960, only 8,946 were in certified States, as compared with 22,964 in noncertified States. Of the 28,741 premises with infection in 1961, only 6,251 were in certified States, as compared with 22,490 in noncertified States. Plotted on a graph,

it can readily be seen that almost all of the reduction in 1961 was in the certified States. This speaks well for the efficiency of the program in proceeding toward total eradication in certified areas.

The number of cattle blood tested was up 7 percent over 1960, but the number of reactors disclosed in 1961 was approximately the same (135,915 in 1960, and 136,816 in 1961). There were 1.04 percent reactors for the year. Many new areas were added to the program, some of which had a comparatively high incidence of brucellosis, and this contributed to the constant number of infected animals found. Also, with increasing efficiency of the screening programs, testing activities are being funnelled into a higher percentage of the herds most likely to reveal reactors.

The number of milk ring tests increased almost 6 percent over 1960 in spite of a continued decrease in the number of dairy herds in the United States. This was the result of increased frequency of tests in many areas. Suspicious milk ring tests reached a new low of only 1.9 percent.

Milk Ring Testing Program

The milk ring testing program is still the brightest spot in the brucellosis eradication picture. Already seven States are conducting these tests at the desired frequency of four times a year. An additional 20 are testing 3 times a year; 23 are testing twice; and 1 is testing some of the herds once a year. All States are urged to increase the frequency to four times a year as soon as work loads will permit.

In regard to the value of milkring testing and market cattle testing, in Certified Brucellosis-Free Areas these tests have been the most efficient of all procedures in detecting infected herds, and this in spite of the fact that annual blood tests of all herds are conducted in many such areas.

Although of limited value, the cream ring test is now used by 20 States to disclose suspicious herds. There is hope that the cream test will be further standardized so that results will be more reliable. Should this be achieved, the task of blood testing large numbers of small dairy herds selling cream in some areas will be eliminated and the herds will be more effectively screened.

Present Status of the Market Cattle Testing Program

Participation of the various States in the market cattle testing program has been increasing at a phenomenal rate. At the close of 1961, only five States had not yet begun tests of cattle originating in their own territory. While the program is still on a small scale in many States, it has mushroomed to a very large program on a national scale, and market cattle are now being tested at the rate of more than two million a year. It is highly significant that the present rate is very close to the minimum number of tests desired for an adequate program--five percent of the cows in the United States. If tests were obtained at this rate in all areas there would be no question but that brucellosis eradication would be materially hastened.

Market Cattle Testing in Conjunction with Initial Certification of Areas

A major step forward was the adoption, during 1961, of the market cattle testing program to qualify individual herds of cattle in areas seeking recognition as Modified Certified Brucellosis Areas. Under this program, areas with beef herds undertake a three-year plan of qualification. As many herds as possible will be brought under the market cattle testing program. To be classed as a free herd, each herd so qualifying must have been enrolled for a period of not less than 18 months, and the number of market tests credited to each herd must be not less than 15 percent of the cows in the herd. All dairy herds in the area should be covered by semi-annual milk ring tests.

Beef herds which are not infected will benefit by this program, since tests at the ranch will be needed only in those which reveal infection in the market cattle. This should do much toward enlisting the participation of the approximately 500 counties which have not yet joined the program on an area basis. Since a number of these areas have a relatively high incidence of brucellosis, particularly in the South, this should lower the cost of initial certification by funnelling eradication activities into those herds most likely to be infected.

Calfhood Vaccination

Vaccination of calves increased in 1961 by almost 6 percent, topping 1959 by almost 20,000, and establishing a new high for this activity. However, there is still a great need to increase vaccination in most areas, particularly in the Plains States and South where brucellosis eradication is lagging and where the incidence

of the disease is relatively high. Complacency in Modified Certified Brucellosis Areas must be overcome, also, as a highly resistant cattle population is necessary until the risk of exposure has been eliminated. Estimates by the various States indicate that, on the average, only 60 percent of the eligible heifer calves are being vaccinated at the present time. This should be increased to a minimum of 80 percent if the greatest benefit is to be realized. Farmers and ranchers can contribute a great deal to the program by taking an active interest in this activity, requesting the service whenever calves reach the proper ages. Although a substantial portion of calves vaccinated receive the service at the owners' expense, this is one of the finest "insurance policies" which can be obtained.

"Problem Herd" Program

As work loads decrease in Modified Certified Brucellosis States, particularly in relation to the number of herds revealing infection, brucellosis eradication is hastened by adoption of the "problem herd" program. Perhaps this program is misnamed, for there are no such things as "problem herds," but there are herds with special problems. In most States a few herds will be found which do not respond to usual program procedures. Sometimes this is due to failure on the part of the cattle owners to observe the minimum recommendations for brucellosis eradication. In other cases there are stubborn problems which require additional tests and procedures in order to identify the last infected animals and free the herds of brucellosis. In most areas where the program is in operation (now 17 States), veterinary brucellosis eradication specialists are directing the

activities. These men have received advanced training in the skills and principles involved, and their efforts are meeting with outstanding success. At first there was a tendency to believe that supplemental tests would be most useful in removing suspicion from certain animals with persistent titers to the blood serum agglutination test, but which were not frank reactors. On the contrary, the most valuable contribution of these tests is to prove the presence of active virulent field strains of Brucella. Many herds which might otherwise have remained infected for a number of years have been freed of brucellosis quite promptly by this approach. It is believed that practically all States will need this type of service before eradication is attained. Brucellosis eradication specialists are being trained as rapidly as possible to fill the need.

"Closing the Gap"

To those who are most familiar with the brucellosis eradication program throughout the United States, it is obvious that there is a great need to "close the gap." A number of States are on the verge of total eradication but their efforts are hampered by other areas which, in some cases, have not yet requested the program on an area basis. Regional eradication with strong barriers against the less advanced regions is not realistic nor practical. The cost of such a sustained program would be prohibitive, and the program would not be completely successful. Brucellosis will continue to find its way into populations formerly free of the disease as long as it exists unchecked anywhere in the Nation. An urgent appeal should be made now to all nonparticipating areas to join in this most worthwhile

endeavor. Every dollar spent now will buy more in terms of brucellosis eradication than at any time in the history of the program. If all areas approach eradication simultaneously the savings will be enormous.

A Look at the Future

1962 should be a banner year in brucellosis eradication achievements. Those States which expect to attain Certified Brucellosis-Free Area status are Maine, Connecticut, Rhode Island and Utah. The goals given by the various States for new Certified Brucellosis-Free Area counties indicate an expected increase of 163.

Those States which expect to achieve Modified Certified Brucellosis Area status are South Carolina, California, Arkansas, Virginia, Alaska, Illinois, Kansas and Missouri. If all of these are successful, this will be the largest number of States ever to qualify in a single year. Individual goals of the various States indicate that 304 new counties will earn this designation.

The one dark spot on this otherwise bright picture is that only 120 of the 534 counties remaining to be certified at the close of 1962 are expected to be working toward Modified Certified Brucellosis Area status on a complete area basis. Counties not yet participating will be located in the following eleven States: Alabama, Colorado, Florida, Iowa, Louisiana, Mississippi, Nebraska, North Dakota, South Dakota, Texas and Wyoming. Let's strive for '65!

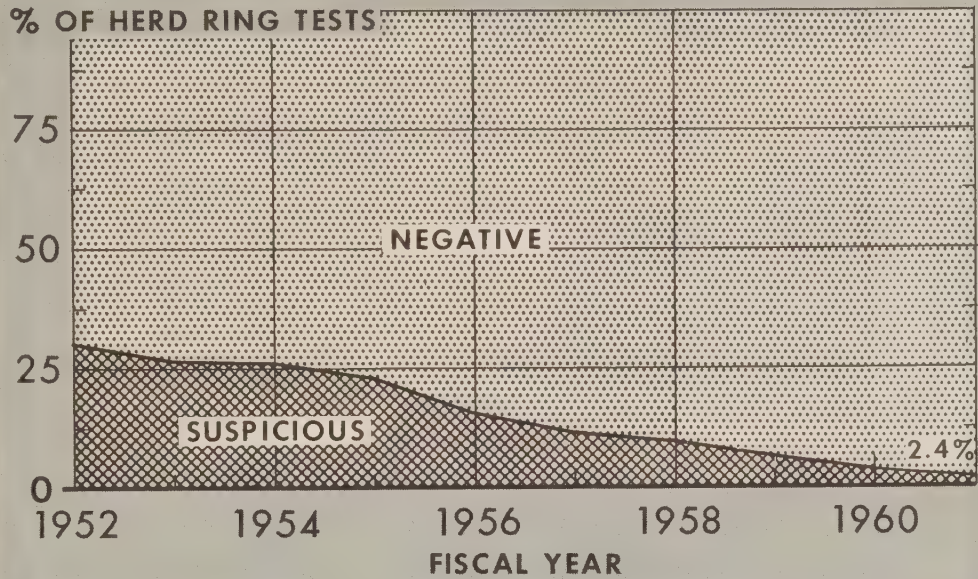
COOPERATIVE BRUCELLOSIS ERADICATION PROGRAM DATA

| Activities | Calendar Year | | Percent Change for 1961 |
|-------------------------------|---------------|------------|----------------------------|
| | 1960 | 1961 | |
| Blood Tests | | | |
| Herds-Lots..... | 1,146,811 | 1,555,013 | +35.6 |
| Reactor Herds-Lots..... | 53,668 | 60,865 | +13.4 |
| Percent..... | 4.7 | 3.9 | (-0.8) |
| Cattle Tested..... | 12,338,812 | 13,207,861 | +7.0 |
| Reactor Cattle..... | 135,915 | 136,816 | +0.7 |
| Percent..... | 1.10 | 1.04 | (-0.06) |
| Ring Test | | | |
| Herd Tests..... | 1,656,293 | 1,753,394 | +5.9 |
| Suspicious Herd Tests..... | 48,970 | 33,866 | -30.8 |
| Percent..... | 3.0 | 1.9 | (-1.1) |
| Vaccinations (Calfhood)..... | 6,382,624 | 6,751,362 | +5.8 |
| Certification of Counties | | | |
| Modified Certified | | | |
| New and Reinstated | 256 | 252 | |
| Removed..... | 6 | 13 | |
| Total | 2,032 | 2,214 | |
| Certified Brucellosis-Free | | | |
| New | 43 | 57 | |
| Total..... | 43 | 100 | |
| Total Certified Counties..... | 2,075 | 2,314 | +11.5 |

() % difference

RING TESTING: HERDS

Cooperative State-Federal Brucellosis Eradication Program



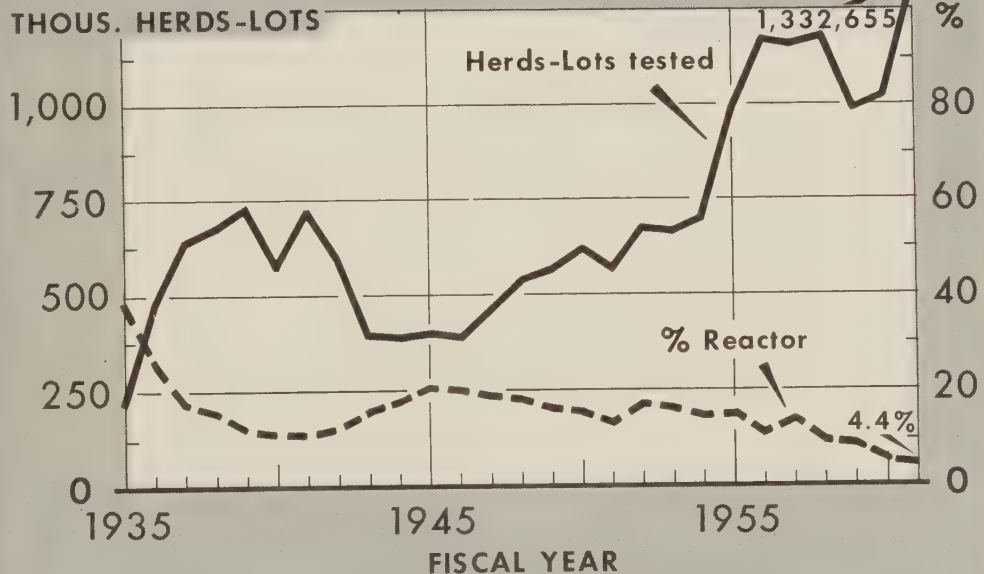
U. S. DEPARTMENT OF AGRICULTURE

NEG. 61 (6)-5066

AGRICULTURAL RESEARCH SERVICE

BLOOD TESTING: HERDS-LOTS

Cooperative State-Federal Brucellosis Eradication Program



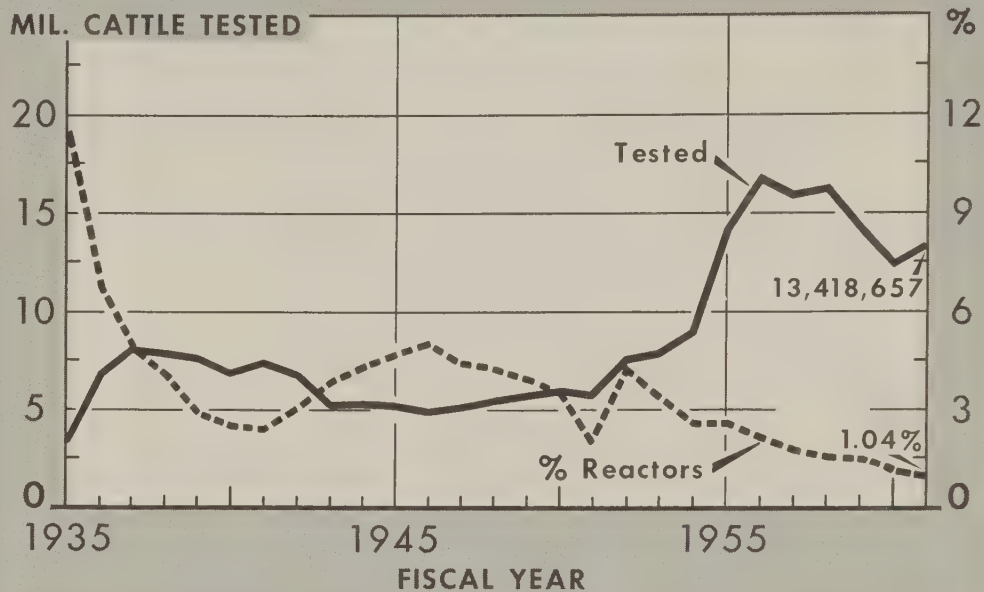
U. S. DEPARTMENT OF AGRICULTURE

NEG. 61 (6)-5061

AGRICULTURAL RESEARCH SERVICE

BLOOD TESTING: CATTLE

Cooperative State-Federal Brucellosis Eradication Program



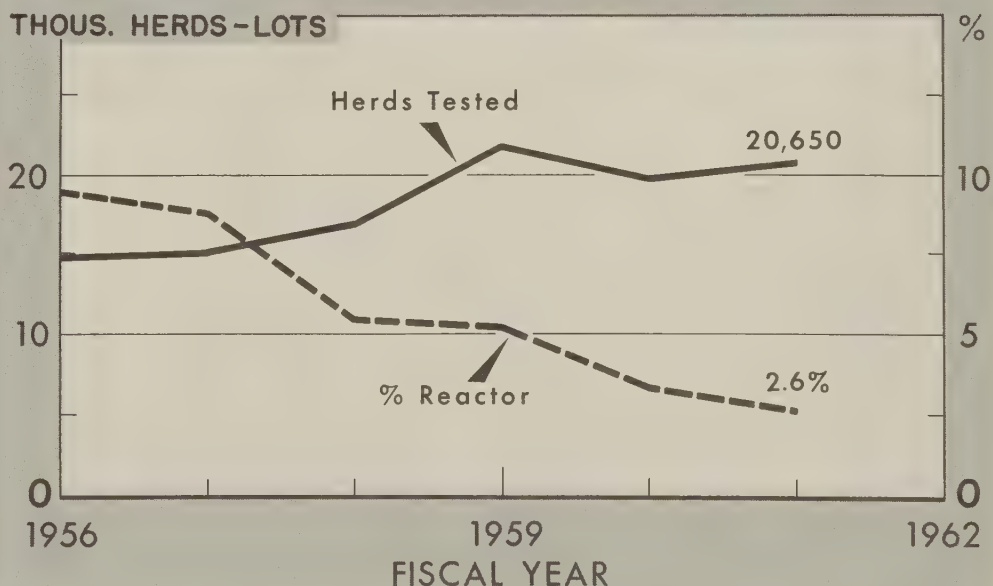
U. S. DEPARTMENT OF AGRICULTURE

NEG. 61 (6) - 5081

AGRICULTURAL RESEARCH SERVICE

BLOOD TESTING: SWINE

Cooperative State-Federal Brucellosis Eradication Program



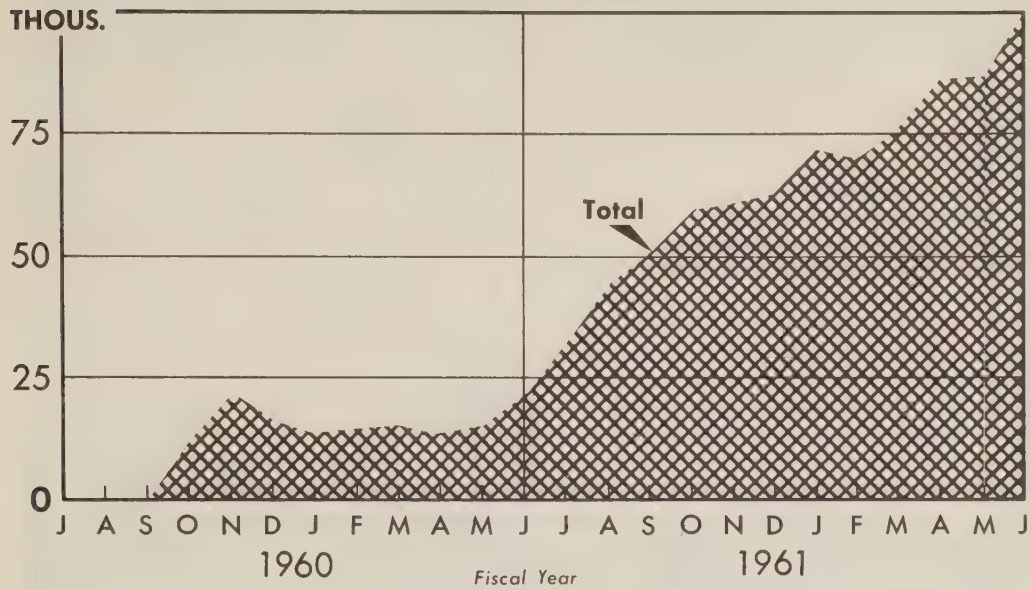
U. S. DEPARTMENT OF AGRICULTURE

NEG. 61 (6) - 5129

AGRICULTURAL RESEARCH SERVICE

MARKET CATTLE TESTING PROGRAM

Cattle Blood Tested

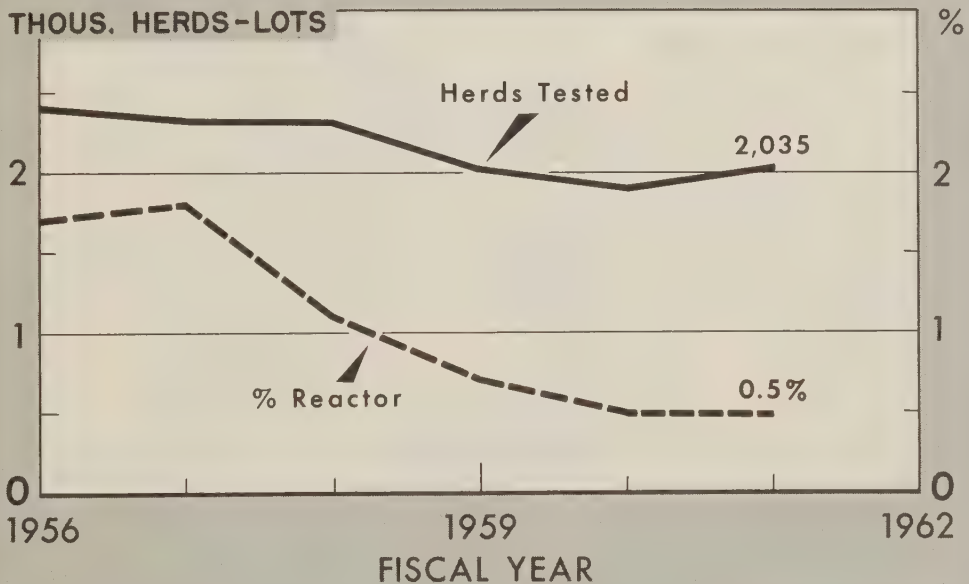


U. S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

BLOOD TESTING: GOATS

Cooperative State-Federal Brucellosis Eradication Program



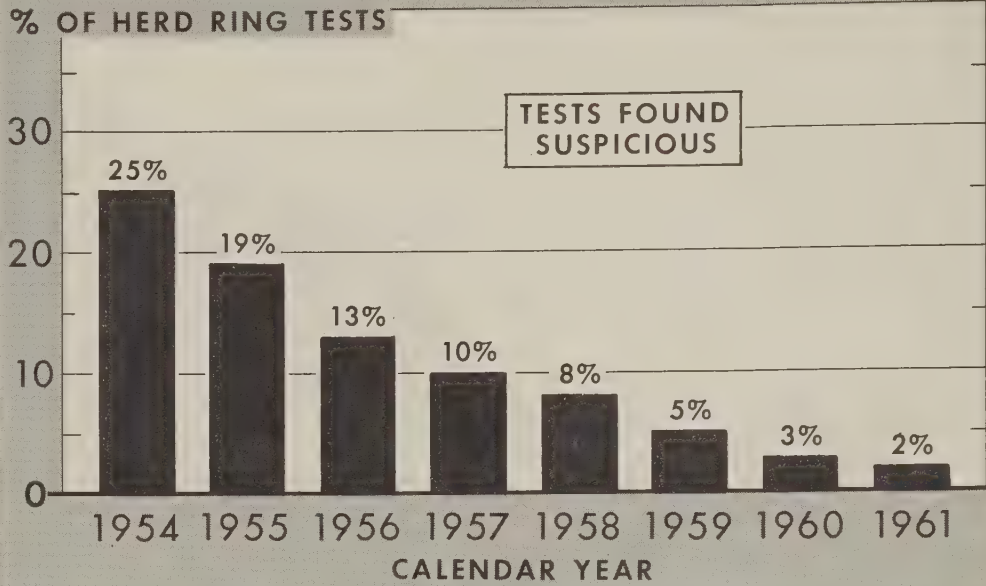
U. S. DEPARTMENT OF AGRICULTURE

NEG. 61 (6)-5130

AGRICULTURAL RESEARCH SERVICE

RING TESTING: HERDS

Cooperative State-Federal Brucellosis Eradication Program

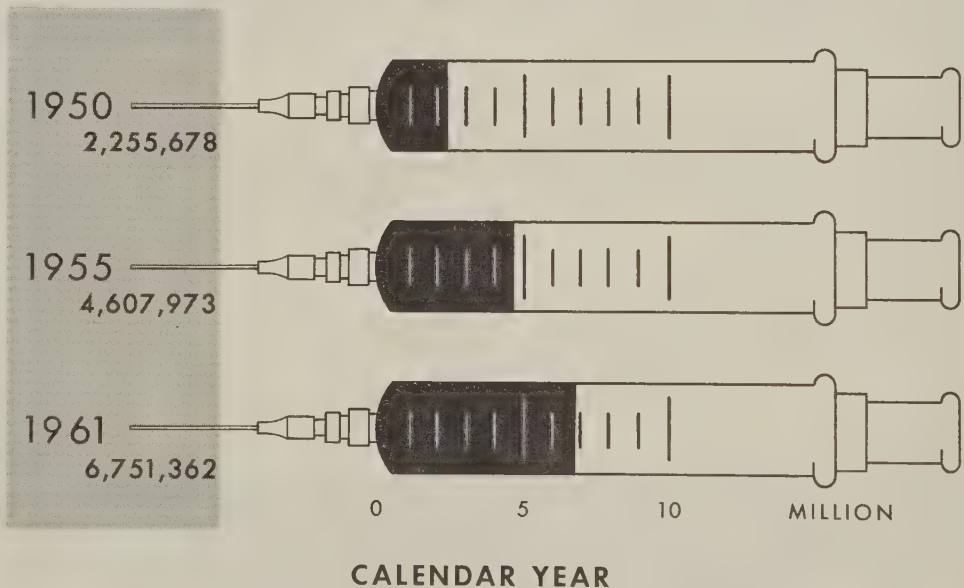


U. S. DEPARTMENT OF AGRICULTURE

NEG. 62(1)-5088 AGRICULTURAL RESEARCH SERVICE

CALVES VACCINATED

Cooperative State-Federal Brucellosis Eradication Program



U. S. DEPARTMENT OF AGRICULTURE

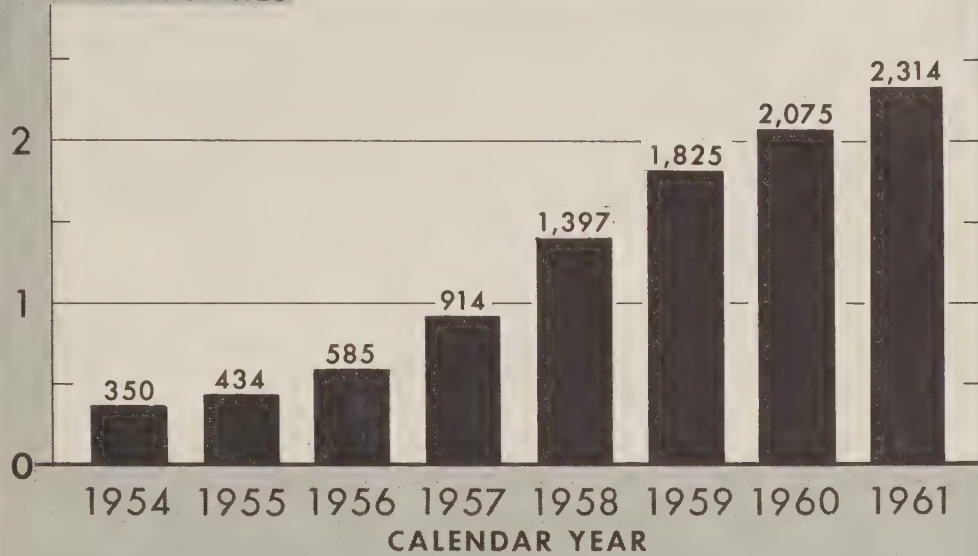
NEG. 62(1)-5082

AGRICULTURAL RESEARCH SERVICE

CERTIFIED COUNTIES

Cooperative State-Federal Brucellosis Eradication Program

THOUS. COUNTIES



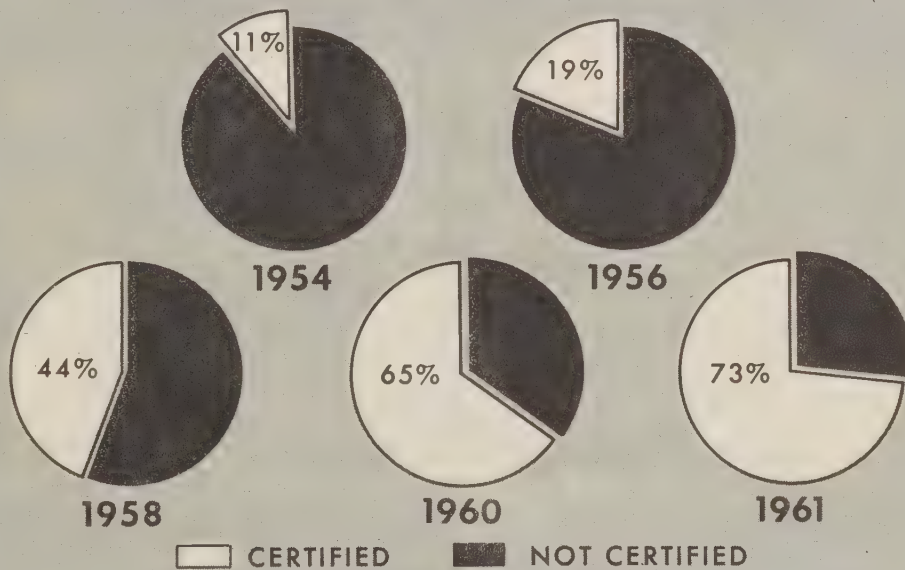
U. S. DEPARTMENT OF AGRICULTURE

NEG. 62(1) - 5089

AGRICULTURAL RESEARCH SERVICE

COUNTY CERTIFICATION STATUS

Cooperative State-Federal Brucellosis Eradication Program



DATA AS OF DECEMBER 31, YEARLY

U. S. DEPARTMENT OF AGRICULTURE

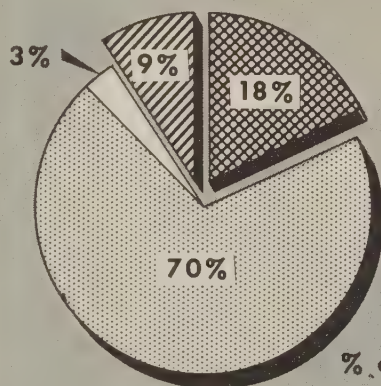
NEG. 62(1) - 5050

AGRICULTURAL RESEARCH SERVICE

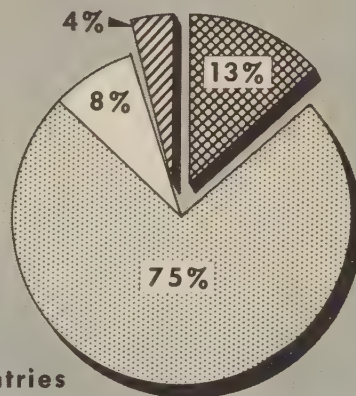
COUNTY CERTIFICATION STATUS

Cooperative State-Federal Brucellosis Eradication Program

Dec. 31, 1961



Goal
Dec. 31, 1962



% of Total Counties

 Modified Certified
  Certified Free
 Area Work in Progress
  Individual Herd Participation

U.S. DEPARTMENT OF AGRICULTURE

NEG. 62 (1)-5131

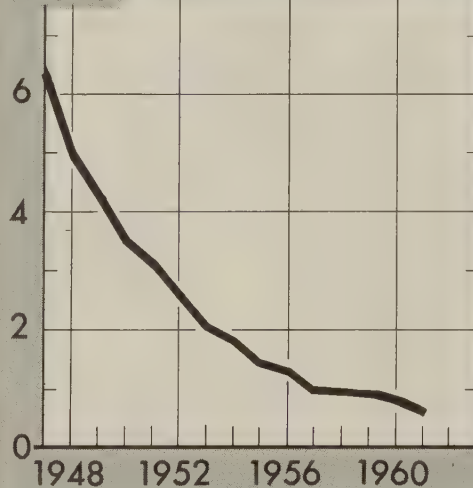
AGRICULTURAL RESEARCH SERVICE

BRUCELLOSIS-UNDULANT FEVER

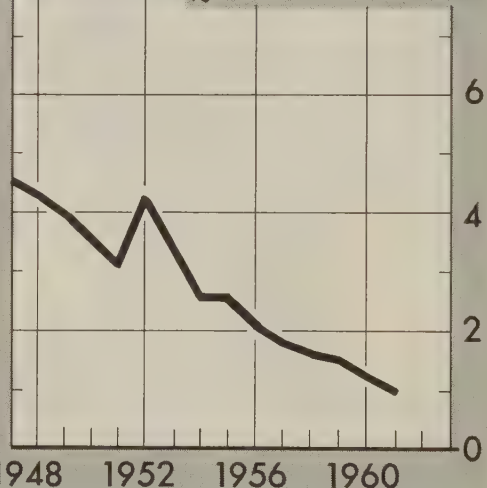
HUMAN CASES

CATTLE INFECTED*

THOUS.



% OF CATTLE TESTED



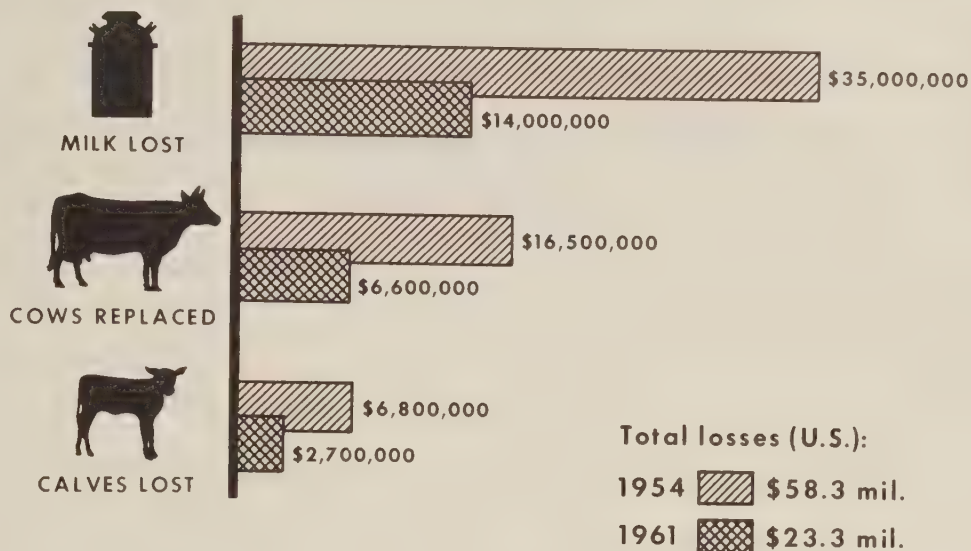
* BASED ON BLOOD TEST ONLY.

U. S. DEPARTMENT OF AGRICULTURE

NEG. 62 (1)-5097

AGRICULTURAL RESEARCH SERVICE

BOVINE BRUCELLOSIS LOSSES

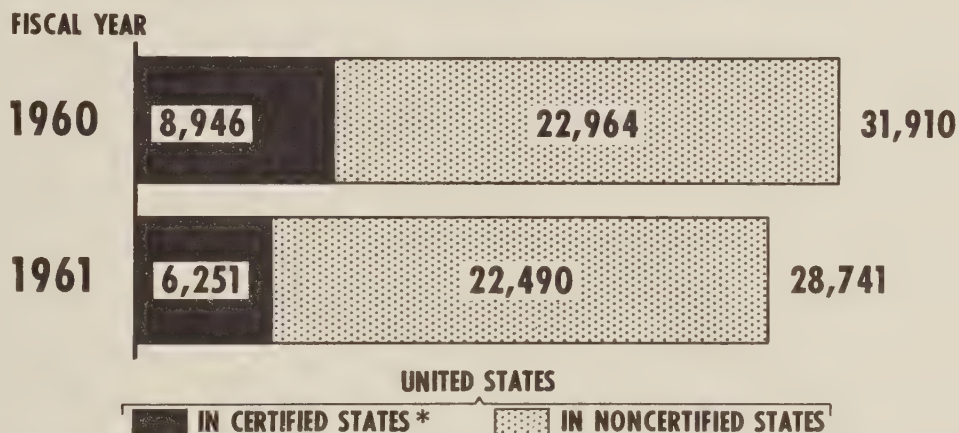


U. S. DEPARTMENT OF AGRICULTURE

NEG. 61 (12)-5013 AGRICULTURAL RESEARCH SERVICE

Bovine Brucellosis Eradication

BRUCELLOSIS INFECTED HERDS



* INCLUDES ALL 26 STATES CERTIFIED AS OF JUNE 30, 1961 PLUS PUERTO RICO AND VIRGIN ISLANDS.

U. S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

RECOMMENDATIONS OF NATIONAL BRUCELLOSIS COMMITTEE

by
S. H. McNutt, Chairman

An extra session of the committee was needed to complete its deliberations, adjournment of second meeting made immediately prior to going into the general LCI business session. Minutes of the meeting are published in the "1962 Proceedings of the Annual Meeting of Livestock Conservation, Inc."

Recommendations for special emphasis in 1962 were:

1. Continued education in the field of both bovine and swine brucellosis is necessary.
2. Emphasis on value of calfhood vaccination should be increased.
3. Work toward goal of total eradication of brucellosis with target date of 1972 for eradication of bovine brucellosis as indicated by Certified Brucellosis-Free area status and total eradication in all species by 1975.
4. It is recommended that a swine brucellosis program for the swine industry be pushed as rapidly as possible.

NOMINATING COMMITTEE REPORT OF THE NATIONAL BRUCELLOSIS COMMITTEE

Committee members: Fred Hobert, Dudley Campbell and R. W. Smith

Officers

Chairman -----S. H. McNutt
Vice Chairman-----C. G. Scruggs
Secretary-----Harvey Dastrup
Ass't Secretary-----R. E. Burleson

Directors to expire in 1965

Paul Zillman
James Connley
W. D. Knox
John A. Killick
Lyle V. Springer
R. W. Smith
Leo Welder
Archie Wilson

Executive Committee

W. D. Knox
C. A. Manthei
C. K. Mingle
Bob Laramore
R. E. Burleson
Keith Myers
Dudley Campbell
Herman Aaberg
Paul Zillman

